

**Translating Derivational Suffixes in Linguistics
Terminology from English into Arabic**

By

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Declaration

I hereby declare that this thesis has been written by myself and does not represent the work of any one else.

Jamal M. Giaber

Transliteration System

Arabic Letter

Transliteration

Short Vowels

ا	,
ب	b
ت	t
ث	th
ج	j
ح	h
خ	kh
د	d
ذ	dh
ر	r
ز	z
س	s
ش	sh
ص	s
ض	d
ط	t
ظ	z
ع	,
غ	gh
ف	f
ق	q
ك	k
ل	l
م	m
ن	n
هـ	h
و	w
ي	y
ى	t

َ	a
ُ	u
ِ	i

Long Vowels

آ	aa
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Diphthongs

اوْ	aw
ايْ	ay
ويْ	iyy
وْوْ	uww

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Abstract

Despite the fact that in the past Arabic had one of the major linguistic traditions in the world, modern linguistic research in Arabic still lags behind research in such languages as English and French. This situation is due to a number of factors including (1) the lack of a comprehensive project for translating modern linguistic literature in general and linguistic terminology in particular, and (2) the constant and rapid development of modern linguistics. Approaching modern linguistics via translation has always been harder and less fruitful than approaching the discipline in the original languages of linguistic research. This is in part due to problems related to the translation and standardization of terminology. One of the most outstanding issues facing standardization and progress in modern linguistics in Arabic is that of translating derivational affixes. This issue has always been treated superficially. Affixes have been treated globally without adequate regard to their use in the discipline, and without proper consideration of translation problems. What is actually needed is a thorough treatment of affixes from the point view of terminological translation, and in the light of Arabic word-formation devices. This study is a contribution in this respect. It considers the translation of ten suffixes in linguistics terminology from English into Arabic. These suffixes are: -able, -ization, -lect, -eme, -nym, -graph, -graphy, -gram, -logy and -ics. In discussing the issues related to translating these suffixes, the following six-procedure approach was adopted: (1) identification of the origin and general use(s) in English of each suffix, (2) identification of the technical sense(s) of each suffix in linguistics, (3) identification of the ways through which Arabic expresses the concepts denoted in English by the discussed suffix, (4) critical discussion of the translation equivalents offered by Arab terminographers for the linguistic terms formed by each of the above suffixes, (5) identification or suggestion of suitable translation technique(s) that achieve(s) precision, concision, and consistency, and maintain(s) formal and conceptual relationships between morphologically and semantically related terms, and (6) verification of the adopted translation techniques and linguistic devices by suggesting suitable translation equivalents for all included terms. The study is divided into six chapters the first of which is an introduction. The second chapter is devoted to some linguistic and terminological preliminaries, including (a) special nature of technical terms in general, (b) nature of linguistics terminology in English and its impact on translation, (c) significance of word-formation and its implications for terminological translation, (d) word-structure and word-formation in Arabic, and (e) nature of English suffixes and its implications for terminological translation into Arabic. Issues related to translating the selected suffixes *proper* are discussed in the core chapters as follows: the suffixes -able and -ization in chapter three, the suffixes -lect, -eme and -nym in chapter four, the suffixes -graph, -graphy and -gram in chapter five, and the suffixes -logy and -ics in chapter six.

Abbreviations

ALECSO	Arab League Educational Cultural and Scientific Organization
Al-Munjid	<i>al-Munjid fii al-Lugha</i>
Cairo Academy (Technical terms)	Majma' al-Lugha al-'Arabiyyah: <i>Majmuu'at al-Mustalahaat al-'Ilmiyyah wa al-Fanniyyah</i>
COD	<i>The Concise Oxford Dictionary</i>
LDOTEL	<i>Longman Dictionary of the English Language</i>
NSOED	<i>The New Shorter Oxford English Dictionary</i>
OED	<i>Oxford English Dictionary</i>
RHD	<i>The Random House Dictionary of the English Language</i>
SL	Source Language
TL	Target Language
Webster's	<i>Webster's Third New International Dictionary</i>

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Chapter I

Introduction

1.1. General background

Despite the fact that Arabic linguistics constitutes one of the major linguistic traditions in the world, together with the Indian and Greek ones (cf. Bohas et al, 1990: vii), modern linguistic research in Arabic still lags behind research in other languages such as English, French and German. This situation is due to a number of factors including (1) the lack of unified and systematic research methods for approaching modern linguistics¹; (2) the lack of a comprehensive project for translating modern linguistic literature in general and linguistic terminology in particular from other languages into Arabic; (3) the variation in structure and culture between the languages of original linguistic research, such as English, French, German and Russian, from which modern linguistic literature is translated into Arabic; (4) the lack of unanimity about translation methods and techniques among Arab translators, terminologists and terminographers²; (5) the constant and rapid development of modern linguistics and the continuous flow of terminology; (6) terminological diversity among linguists and linguistic schools and the lack of full standardization of linguistic terminology in English and other languages of original research; and (7) the strong desire by many Arab translators, terminologists and terminographers to reconcile modern linguistic concepts/terms with those of the Arabic linguistic tradition³.

Approaching modern linguistics via translation has always been harder, more misleading and less fruitful than approaching the discipline in the original languages

¹ 'Linguistics' here is used in its wider sense to include phonetics as one of its branches.

² A good example of the chaotic situation of modern linguistics in Arabic, and of the differences between Arab linguists and translators in approaching modern linguistics is that of the title of the discipline itself. Different terms have been used by different linguists, institutions, terminographers and translators in referring to the discipline of linguistics. Among these are: *'ilm al-lughah*, *'ilm al-lughaat*, *al-lughawiyyaat*, *al-lisaaniyyaat*, *al-'alsuniyyah*, *al-lisaaniyyah*, etc.

³ See also al-Msaddii, 1984: 55, 56.

of linguistic research. This is in part due to problems related to the translation and standardization of terminology, which have been persistent obstacles to the progress of modern linguistics in Arabic. Failure in the translation and standardization of modern linguistic terminology has resulted in terminological and conceptual chaos, which has impeded the development of modern linguistics on a sound basis in Arabic.

One of the most outstanding issues facing standardization and progress in modern linguistics in Arabic is that of translating derivational suffixes and prefixes used in linguistics terminology in English and other European languages. As a word-formation process in these languages, affixation is of paramount importance to terminology due to its usefulness in designating intricate concepts and achieving standardization. The importance of affixation in English and other European languages, and the problems it generates in translating technical terms from these languages into Arabic has always attracted the attention of Arab linguists, translators, terminologists and terminographers in their discussions of the problems of translating technical literature from any of these languages.¹ However, the issue of translating suffixes and prefixes in general has always been treated superficially,² dealing with affixes in a general fashion, but not thoroughly as used technically in a particular discipline or subdiscipline. Generality of the treatment is reflected in five ways:

- 1- Failure to discuss all suffixes or prefixes used in a specific discipline, i.e. limited coverage.
- 2- Failure to identify all meanings technically assigned to affixes in different terminological contexts.
- 3- Lack of a thorough treatment of translation problems.

¹ See: Majma' al-Lughah al-'Arabiyyah al-Malakii (1938: 153-164), al-Mughnim (1985), al-Hamzaawii (1986a: 186-210), al-Hamzaawii (1986b: 101-116), al-Hamzaawii (1988: 447-483), al-Msaddii (1984: 35-37), al-Sammaan (1974), 'Ayyuub (1976: 14-15), al-Fihrii (1983), Mukhtaar (1980) and al-Malaa'ikah (1981).

² This excludes the treatment of the suffix -able by al-Malaa'ikah (1981).

4- Failure to make proper use of the Arabic lexical and morphological resources in providing solutions to some translation problems.

5- Lack, in many cases, of the proper understanding of, and competence in terminological translation.

What is actually needed is a thorough treatment of affixes from the point of view of terminological translation in the light of the linguistic nature of each affix and its terminological sense(s). Issues of relevance here must be further related to Arabic lexical and morphological devices, which is the intention of the present study in respect of *translating ten English derivational suffixes in the technical terms of modern linguistics from English into Arabic*.

1.2. Scope and objective of the study

Although many suffixes are employed in forming the technical terms of linguistics in English, some are more problematic than others in translating linguistic terminology into Arabic. This study is dedicated to the discussion of the issues related to translating ten suffixes only from English into Arabic. These suffixes are: -able, -ization, -lect, -eme, -nym, -graph, -graphy, -gram, -logy and -ics. The reasons for selecting these suffixes include:

- 1- The lack in Arabic of the linguistic technical concept denoted by a suffix, as is the case in -eme and some senses of -graph, -gram, and -nym.
- 2- Semantic inconsistency of the suffix, as is the case with all the above suffixes, with the exception of -eme.

- 3- The lack in Arabic of a single morphological or lexical device to render consistently the different senses denoted by a single suffix in English, as is the case with most of the above suffixes.

This study does not stop at discussing the issues related to translating the above suffixes; it also suggests translation equivalents for all the sets of terms included under each suffix as a verification of the translation techniques and linguistic devices adopted in translating the above suffixes.

In discussing the translational and terminological issues related to the above suffixes, this study aims at achieving the following objectives:

- 1- Identification of as many as possible of the technical senses denoted in linguistics by each of the above suffixes.
- 2- Identification of all actual and potential contrastive morphological and lexical devices in Arabic that can express the variety of concepts denoted in linguistics by the above ten suffixes.
- 3- Identification of suitable translation techniques that can produce denotatively precise, morphologically concise and formally¹ consistent translation equivalents in Arabic for each set of linguistic terms in which a suffix denotes a specific concept.

However, it must be pointed out here that denotative precision and morphological concision are two conflicting factors in the process of translating technical terminology, especially when translating from an affixational language, such as English, into a non-affixational language, such as Arabic.

¹ 'Formal' is used here in the sense of 'of or pertaining to "the sensorily perceptible aspect of the linguistic sign [...] in contrast to content/meaning or function"' (Bussmann, 1996: 169).

It follows that the concept of 'concision' in this context is a relative one, that is to say, concision in terminological translation should normally be viewed and judged in the light of the TL's natural word-formation methods and the possibility of achieving it, rather than as an absolute fact. Therefore, a two-word, and sometimes a three-word, translation equivalent in Arabic, such as *tahyid al-siyaaq*, rendering a one-word term in English, such as 'decontextualization', is legitimately described as concise in Arabic, when no more concision is possible. This fact is manifest in the translation equivalents suggested in this study for many linguistic terms formed by the above mentioned suffixes.

It is also worth pointing out that designation of lexical items in English and some other European languages is based on convention more than on the semantic transparency of the lexical and morphological elements involved in forming a particular syntagma¹, whereas designation of lexical items in Arabic exhibits the reverse. In other words, lexical morphemes (roots) and morphological patterns (*al-siyagh al-sarfiyyah*) in Arabic are usually semantically transparent and relatively consistent, because etymologically the vast majority of roots and probably all morphological patterns are originally Arabic. In English, on the other hand, the majority of roots and affixes are borrowed from other languages, such as Greek, Latin and French, and are employed inconsistently. In translating semantically complex items from English into Arabic, this usually results in the use of full words in Arabic to represent the same semantic components represented by morphological elements in English, such as *'ilm al-kitaabah al-'abjadiyyah* for 'alphabetology'. It is only through morphological contraction and semantic abstraction that a relatively more concise term can be produced in Arabic, such as *al-kitaabiyaat al-'abjadiyyah* or *al-'abjadiyyaat*. However, this process of shortening translation equivalents is not always possible in Arabic.

In order for the treatment of each suffix to be comprehensive, this study includes as many technical terms formed by each of the above suffixes (with the

¹ In word-formation, a syntagma is a combination of two or more linguistic units such as morphemes in the case of single words, or words in the case of compounds (cf. Richards et al, 1992).

exception of -able) as possible, in order to identify as many of their technical senses in linguistics as possible. However, the included lists of linguistic terms formed by each of the discussed suffixes should by no means be regarded as exhaustive.

1.3 Research methodology

In discussing the above suffixes, the following six-procedure approach is adopted¹:

1.3.1. Identification of the origin and general use(s) in English of each suffix, for which English dictionaries, such as the OED, the NSOED and Webster's, and other related sources, such as Marchand (1969), are used.

1.3.2. Identification of the technical sense(s) of each suffix in linguistics through the classification of the linguistic terms formed by each suffix into semantically homogeneous sets in which the suffix denotes an intensionally and extensionally distinct concept.

1.3.3. Identification of the ways in which Arabic normally expresses the concepts denoted in English by the discussed suffix in each of the semantically classified sets of linguistic terms. Lexical and/or conceptual gaps are also identified at this stage.

1.3.4. Critical discussion of the translation equivalents suggested by Arab terminographers for each of the semantically classified sets of linguistic terms formed by each of the above suffixes. In conducting this part of the study, the following dictionaries of linguistic terms are used:

(a) al-Khuulii (1982): *A Dictionary of Theoretical Linguistics (English-Arabic)*

(b) Bakalla et al (1983): *A Dictionary of Modern Linguistic Terms (English-Arabic)*

¹ In discussing -able, this approach is slightly modified.

- (c) al-Khuulii (1986): *A Dictionary of Applied Linguistics (English-Arabic)*
- (d) ALECSO (1989): *Unified Dictionary of Linguistic Terms (English-Arabic-French)*
- (e) al-B'albakii (1990): *Dictionary of Linguistic Terms (English-Arabic)*
- (f) Mubaarak (1995): *Mu'jam al-Mustalahaat al-'Alsuniyyah (French-English-Arabic)*
- (g) Ghazaalah (1996): *A Dictionary of Stylistics and Rhetoric (English-Arabic/Arabic-English)*

It is worth pointing out here that only some of these dictionaries are used in discussing each suffix, based on the number of terms included. In some cases, five of the above dictionaries are used (-eme and -nym), and in some other cases only three or four are used (-lect, -graph, -gram, -logy, etc.). In discussing the suffix -able, reference in this respect is made to the original points of view expressed by Arab philologists, grammarians, linguists, translators and terminologists, including those operating under the Cairo Academy.

1.3.5. Identification or suggestion of the most suitable translation technique(s) that achieve(s) denotative precision, the most possible morphological concision and consistency, while maintaining morpho-semantic relationships between morphologically and semantically related terms.

1.3.6. Finally, suggestion of suitable translation equivalents for all included terms in the light of the above steps.

Through the adoption of the above approach, this study will aim to achieve the following:

- 1- The collection of as many as possible of the technical senses of each of the discussed suffixes in linguistics in English in one work.

- 2- Verification of the most terminologically suitable Arabic linguistic devices and translation techniques that render each of the above English suffixes as technically used in linguistics and in the light of the contrastive differences between English and Arabic.
- 3- The provision in Arabic of technical terms for more than 450 technical linguistic concepts, which can give a good boost to the stumbling progress of modern linguistics in Arabic.
- 4- The establishment of a systematic approach for translating suffixes, which can also be applied to prefixes.

1.4. Organization of the study

This study is divided into six chapters, the first of which is this introduction which gives a general background about the issue of translating linguistic terminology into Arabic, and the scope, objectives, approach and organization of the study. The second chapter is devoted to some linguistic and terminological preliminaries, which include (a) special nature of technical terms in general as a sub-set of special language, (b) nature of the linguistics terminology in English and its impact on conceptualization and translation, (c) significance of word-formation and its implications for terminological translation, (d) word-structure and word-formation in Arabic, and (e) some aspects of the nature of English suffixes and their implications for terminological translation into Arabic. The main objectives of this preliminary chapter are (1) to place the whole issue of translating suffixes in the linguistics terminology from English into Arabic in its proper context, linguistically and terminologically, and (2) to acquaint the reader with preliminary considerations which are designed to guarantee the proper conceptualization of the issues and notions discussed in the core chapters.

Issues related to translating the selected suffixes proper are discussed in the core chapters as follows: the suffixes -able and -ization in chapter three, the suffixes

-lect, -eme and -nym in chapter four, the suffixes -graph, -graphy and -gram in chapter five, and the suffixes -logy and -ics in chapter six. The study is concluded by a summary of the most important issues discussed and conclusions.

Chapter II

Linguistic and terminological preliminaries

The translation of suffixes in linguistics terminology from English into Arabic is part of the wider issue of the translation of linguistics terminology, which is related directly or indirectly to a number of linguistic and terminological preliminaries. Without the discussion of these preliminary issues related to the translation of suffixes cannot be adequately dealt with. These linguistic and terminological preliminaries include: (1) special nature of terminology, (2) nature of linguistics terminology in English, (3) significance of word-formation and its implications for terminological translation, (4) nature of word structure and word-formation in Arabic, and (5) nature of English suffixes and its implications for terminological translation. These preliminaries will be discussed in this chapter for two reasons: (a) to acquaint the reader with these points which will act as parameters for the forthcoming treatment of individual suffixes, and (b) by discussing these theoretical points together in a separate chapter rather than piecemeal we will avoid repetition.

2.1. Special nature of terminology

One of the signs of the existence and development of any scientific activity or branch of knowledge is the emergence and development of a set of technical terms that represent key ideas within that scientific activity or branch of knowledge. These technical terms are key devices in the processes of conceptualization, research and communication among specialists. This is because

“the rigours of scientific research demand recognition of an established body of terms and concepts which represent currently accepted ‘building-blocks’ to be used in theory construction for the purposes of furthering knowledge in a given area of scholarly activity”. (Kesselman, 1986: 4)

Because of this significance of technical terms, specialists have paid attention to the processes of creation, designation, distribution, standardization and documentation of technical terms falling within their areas of scientific research.¹

In modern times, the immense progress in scientific research and the endless proliferation of technical terms were the two key factors that necessitated the emergence and development of terminology as a scientific activity, subject of study or branch of knowledge² that deals with theoretical and applied issues related to technical terms³. Technical terms in this context are viewed as a set of special lexical units representing an underlying set of special concepts reflecting a special knowledge usually treated as a discipline or sub-discipline. Technical terms as such constitute a sub-set of the specialists' language, which is referred to as 'special language'. If general language is defined as

¹ During Islamic civilization, for example, a large number of terminological references, glossaries and dictionaries of technical terms were compiled in Arabic, including *al-Huduud* by Jaabir ibn Hayyaan, *al-Ziinah* by 'abii Haatim al-Raazii, *al-Zaahir* by al-'Azharii, *Mafaatiih al-'Uluum* by al-Khawaarizmi, *al-Mughrab fii Tartiib al-Mu'rab* by al-Matiriizii, *al-Jaami' li Mufradaat al-'Adwiyah wa al-'Aghdhiyah* by Ibn al-Bitaar, *Tahdhiib al-'Asmaa' wa al-Lughaat* by al-Nawawii, *al-Mu'tamad fii al-'Adwiyah al-Mufradah* by Yusuf ibn 'Umar al-Ghassaanii, *Sharh Istilaah al-Qawm* by al-Qaashaanii, *al-Ta'rifaat* by al-Jurjaanii, *al-Huduud al-'Aniiqah wa al-Ta'riifaat al-Daqiiqah* by Zakariyaa ibn Muhammad al-'Ansaarii, *Tadhkirat 'uluu al-'Albaab* by Daawuud al-'Antaakii, *al-Tawqiif 'alaa Mahammaat al-Ta'aariif* by 'Abdu al-Ra'uuf ibn Taaj al-'Aarifiin, *Kulliyat al-'Uluum* by 'Abu al-Baqaa' and *Kashshaaf Istilaahaat al-Funuun* by al-Tahaanawii, (cf. 'Abdu al-Baaqii, 1979: 108-116).

² Three main approaches to terminology are identified: the subject fields-oriented approach, the philosophy-oriented approach and the linguistics-oriented approach. Each of these three approaches holds different views of terminology and its methodologies: "the subject fields-oriented approach is based on the conception that terminology as science is a field of study of its own, which is interdisciplinary. The philosophy-oriented approach is [concerned with] categorizing concepts in hierarchies. The linguistics-oriented approach applies linguistic and lexicographical methods for terminologies. This approach sometimes includes syntactical, grammatical and stylistic investigations of special languages, which are regarded as sub-languages of the common language" (Felber, 1984: 31).

³ Sager (1990: 1) "denies the independent status of terminology as a discipline but affirms its value as a subject in almost every contemporary teaching programme". Sager claims that "there is no substantial body of literature which could support the proclamation of terminology as a separate discipline and there is not likely to be. Every thing of import that can be said about terminology is more appropriately said in the context of linguistics or information science or computational linguistics". Finally, Sager concludes by saying: "we see terminology as a number of practices that have evolved around the creation of terms, their collection and explication and finally their presentation in various printed and electronic media. Practices, however well-established, do not constitute a discipline, but there is no denying a long history of methodologies which themselves require theoretical underpinnings to justify their distinctive nature. Disciplines establish knowledge about things and as such are justified in their own right; methodologies are only means to an end, in the case of terminology, how to do things".

“a system of arbitrarily conventional and segmentable signs that are habitually used by the individual to express intentions and communicate with others through speech or writing” (‘Ali, 1993: 24),¹

then special languages are:

“semi-autonomous , complex semiotic systems based on and derived from general language; their use presupposes special education and is restricted to communication among specialists in the same or closely related fields”. (Sager et al, 1980: 69)²

Special and general languages interact to produce particular vocabulary items; therefore, special language codes can include general code items, general code items employed in a special way (e.g. force, language, wave), additional items (e.g. phoneme, morpheme, diffraction), and supplementary non-linguistic codes such as formulae and notation. (*Ibid*: 51).

Due to the significance of precision in terminology, special languages give special attention to designation - the process of assigning terms to concepts - because the fixation of concepts by appropriate terms is crucial to progress in scientific research. It is only through the term that the concept can be easily assimilated and developed further (*Ibid*: 240). This “fixation” is normally carried out through special modes and procedures of term formation and designation, and according to specific criteria, which suspend, completely or partially, the characteristic of arbitrariness in the process of designation in special language.³

Technical terms *proper* can be defined as morphologically concise and semantically restricted linguistic signs consciously used in special senses in particular fields or sub-fields of enquiry to refer to or represent concepts of specific objects, qualities or relationships in particular contexts. The total sum of technical terms created and used in a specific discipline or subdiscipline constitutes its

¹ My translation.

² Special languages are sometimes referred to as sub-languages or even jargons in related literature.

³ For such criteria in English see: UNESCO, 1957: 212, 213, and in Arabic see: Husayn (1959), Nashaawii (1981) and al-Malaa'ikah (1983).

terminological system. In other words, through successive acts of designation of terms a group of specialists develops its own system of special reference items, which is called a terminological system (Sager et al, 1980: 79). Thus, the establishment of the terminology of a discipline represents a significant step in the development and establishment of the discipline itself (al-Msaddii, 1984: 88).

In specialised subjects, precision in the treatment of ideas and formulation of statements and theories depends very much on technical terms, which are regarded as substitute labels for definitions. Semantically, the latter are actually the most precise representatives of the intended concepts. As precision requires elaboration, which conflicts with the principle of economy in language and communication, definitions are replaced by concise but denotatively precise terms. Technical terms do not enjoy an intrinsic potential for precision, but they actually acquire it from the supposedly precise definitions they stand for (Sager et al, 1980: 320).

According to the views of the Vienna school, the

“ideal for scientific terms is univocity, that is a relation of biuniqueness between terms and concepts, such that for each concept [...] there is one term only in the corresponding terminological system, and for each term there is associated only one concept. In such a conception, synonymous and polysemous terms, or terms with overlapping meanings, are to be avoided”.(Kesselman, 1986: 28-29)

However, as we shall see in our discussion of the nature of linguistics terminology (cf. 2.2), this utopian view of technical terms, which is based on terminological work within the natural (or exact) sciences, does not always apply in the social sciences.

Terms of a discipline represent its theoretically relevant concepts. The diachronic and synchronic relationships between these terms represent a system that reveals the conceptual structure of the discipline, phases of its development and its relationships with other disciplines. This connection between science and its terminology enter into all stages of scientific conceptualization, classification,

measurement and communication, because technical terms constitute a significant part of the researcher's analytical and descriptive apparatus (Hartmann, 1973: i).

Terms as defined above exhibit various lexical, morphological, syntactic and pragmatic characteristics pertaining to different levels of linguistic analysis. Lexically, technical terms are special lexemes adopted to meet special technical needs of a special group of language users at a particular period of time. Terminologization, as opposed to lexicalization, is the process of adopting linguistic units as technical terms with specific technical meanings, and terminologized units may not be seen as lexicalized in general language. Terminologization is deliberate and serves specific semantic purposes. Unity of a terminologized linguistic unit is decided with reference to the knowledge structure it represents. Thus, terminologization is highly prescriptive (Sager et al, 1980: 232, 233). Sources of terminological designation include (1) general language manipulation, such as redefinition, derivation, compounding, abbreviation and blending, (2) neologization, such as eponymy, (3) borrowing from other natural languages, including dead ones, and (4) hybrid creation. Lexico-semantic relations such as synonymy and polysemy can exist within one or more disciplines; however, specialists generally try to avoid such phenomena for the sake of consistency, clarity and precision. However, this intention is not always fruitful. As already indicated within the views of Vienna school, for a terminologized item to be precise it should denote only one concept, and conversely each concept should be uniquely designated by one term. But, language is always narrower than the scopes of objects and theoretical concepts defined or invented by specialists (al-Msaddii, 1984: 92), thus occasionally leading to the re-employment of the same resources for designation, especially when similar notions are developed in different places or by different specialists or both.

Terminologized units also develop lexical fields that represent semantic fields in one or related disciplines. Lexical fields in terminology are based on the deliberate structure of knowledge, which is subject to development, alteration and modification following progress in a discipline or sub-discipline. Terminologized units representing a lexical field can share closer lexical and morphological relations,

such as the relationships between 'morph', 'morpheme', 'morphemics', 'allomorph', 'zero morpheme', 'morphotactics', 'portmanteau morpheme', 'free morpheme', 'bound morpheme', etc.

Morphologically, terms can be as small as an affix or a bound morpheme (e.g. 'emic', 'etic'), and as big as a phrase or sentence (e.g. 'accusative plus infinitive construction', 'grammar-and-translation-method').¹ Complex morphological constructions and compounding are also predominant in terminology (e.g. decontextualization, morphosyntactic analysis, thermodynamics, terminologization, etc.). Generally, morphological complexity is proportional to semantic value. However, precision and economy are always the two main factors that affect the length of a term morphologically. In some languages, precise but long terms are usually abbreviated for easier and speedier use, making abbreviation another outstanding morphological property in terminology. Through their morphological structures, terms usually manifest formal and semantic relationships, such as the relationships between 'lexeme', 'lexical', 'lexicalization', 'lexicon', 'lexis', 'lexicology', 'lexicography', etc. in the field of linguistics.

It is on the semantic level that technical terms are most characteristic as special linguistic signs, as meaning (however defined) is always communicatively central to the linguistic sign. Technical terms are semantically highly restricted as specific meanings are intended in specific contexts, a feature that yields very close links between terms and concepts (McArthur, 1992: 1033), and between concepts and extra-linguistic entities. Terms are intended to be denotatively and referentially specific, as they denote general ontologically defined individuals, classes and categories, and pragmatically refer to specific individuals, classes and categories in specific contexts.² Terminologized linguistic signs do not always have the same signification as when used in general language, because terminologically they have different significata from that they signify when used in general language. 'Head' in general language is not the same as 'head' when used by specialists in management

¹ See also: Hartmann (1973: 10).

² For the difference between 'denotation' and 'reference' see: Lyons (1977/ I: 208).

(e.g. department head), geography (e.g. mountain head), mechanics (e.g. machine head), grammar (e.g. head of a phrase), etc., because ontologically different extra-linguistic realities are involved. Therefore, semantic denotations of the above forms of 'head' are not the same because they are extensionally distinct.

However, specialized knowledge is not just sets of technical terms. These technical terms imply taxonomies, which categorize reality differently to common sense (Halliday and Martin, 1993: 205-206). The relationship between terms and reality is mediated by concepts, which represent concrete and abstract entities. Concepts can represent relationships, generalizations or properties. Through observation and classification, theoretical concepts can be formed, such as the concept of 'phoneme'. Such theoretical concepts are central to research in science, while in technology objects are central, thus making language concept-centred in science and object-centred in technology (Newmark, 1988: 155). Semantically, terms can be transparent (e.g. boiler, separator, control room) or opaque (e.g. instrument, drill, noun, volt, watt) (Palmer, 1976: 35). Through terminological sense-relations, semantic fields represent conceptual systems of a specialized knowledge structure, and unless concepts are mutually and correctly understood by specialists, communication between them will be seriously impaired.

The majority of technical terms tend to be nouns or nominalized constructions. Nominalization is preferred by specialists because it makes classification and reference easier. The taxonomies established in various subjects organize phenomena as if they were things, because things are normally easier categorised in classes and sub-classes or wholes and parts than processes (Halliday and Martin, 1993: 212-213). Adjectives are also very commonly used in terminology to refer to properties of objects and relationships. Terms are syntactically employed through syntagmatic and paradigmatic relations to treat ideas and formulate statements and/or establish theoretical frameworks.

Pragmatically, terms are key discourse elements with specific semantic values employed by specialists in their special speech acts. Success of the intended message

depends on the presupposition that the recipient is aware of the semantic values attached to these terms. In special subject discourse, technical terms are consciously chosen to be meaningful as meaningfulness implies choice. Terms are communicatively meaningful for the sender through intention and informatively meaningful for the receiver through the attached value or significance (Lyons, 1977/1: 33). Another pragmatic characteristic of technical terms is that they are used consistently within specific contexts and are expected to be interpreted consistently.¹

Based on the above view of the nature of technical terms, it follows that any act of terminological translation can only be self-evident and communicatively unequivocal if it takes into consideration all the above intrinsic characteristics pertinent to technical terms at all levels of linguistic analysis. In other words, the product of any act of terminological translation should be a TL lexical unit - readily available or purposely created - that can conceptually represent the semantic components of the SL technical concept. Morphologically, this TL lexical unit should be as concise as possible in order to be amenable for further derivation and/or compounding. The resultant TL term should also be able to maintain morphological and semantic relationships that hold between the translated term and other morphologically and semantically related SL terms. By reflecting these lexical, morphological and semantic qualities the TL term can be employed by TL specialists in their research and communication processes, and become part of the terminological system of their special language.

¹ All the above issues are systematically dealt with by terminology as a branch of knowledge with three main ultimate objectives: (1) the establishment of principles that govern the creation, designation and use of terms, (2) standardization and (3) documentation (al-Qaasimii, 1988: 85). Scientific work on terminology is of two types: descriptive and prescriptive, and theories controlling it are of two types too: the general theory, which deals with general issues related to technical terms and concepts in general, and the special theory, which deals with specific terminological issues related to specific subjects or languages. Terminography is the sub-field that deals with the documentation and electronic processing of technical terms and related concepts.

2.2. Nature of linguistics terminology in English from a translational perspective

In addition to the intrinsic characteristics of technical terms, the terminology of a discipline can develop further distinctive characteristics pertaining to the nature of the object of enquiry of that discipline and other factors contributing to its development. Such acquired characteristics can have serious implications for the discipline itself and for the translation of its literature into other languages. The terminology of modern linguistics in English is a case in point. The distinctive characteristics of modern linguistic terminology in English pose problems for Arab linguists, translators and terminologists in their endeavour to assimilate this rapidly growing science. In what follows, some of the characteristics and related effects on conceptualization and translation will be briefly dealt with.

2.2.1. Nature of language as an object of study and its implications for linguistics terminology

Based on previous research into the nature of language, and following the distinctions made by de Saussure between *langage* (language in general or the faculty of language), *langue* (a particular language) and *parole* (speech as a product) on the one hand, and the distinction made by Chomsky between linguistic competence and performance on the other, language is considered a psychologically and socially-based phenomenon:

“a language-system is a social phenomenon, or institution, which of itself is purely abstract, in that it has no physical existence, but which is actualized on particular occasions in the language-behaviour of individual members of the language community.” (Lyons, 1981: 10)

Linguistics as the science of language deals with all these aspects of the nature of language as a psychologically and socially-based phenomenon, its structure, use and media of realization. However, sciences devoted to the study of social

phenomena tend to lack completely objective units of measurement, which may be an indication of immaturity of those sciences (Asher, 1994: 3689). In natural sciences, concepts are encoded following observation of the behaviour of matter, such as gravity and contraction in metals. Concepts related to language and society are based on conventional criteria, which change constantly and differ from one society or language to another. The outcome of the behaviour of matter in natural sciences is predictable, but that of social and linguistic trends is rarely predictable (Mackey, 1990: 100). In other words, sciences vary in nature according to their respective objects of enquiry. This variation is reflected in theory, method and terminology. Thus, social sciences tend to achieve less objectivity in methodology and research results and less consistency and standardization in terminology than do the natural sciences.

It is not unexpected for a recent discipline such as linguistics with language as its object of enquiry to exist in a state of constant development theoretically and methodologically. Although constant development is a feature shared by all active sciences, they differ in motives, scope and degree of constancy, and this difference is what makes linguistics figure prominently as a very active discipline. So far, as aspects of language structure, behaviour and use cannot be finally determined no final theoretical or methodological frameworks can be unanimously established. This leads to continuous refinement of these frameworks. Refinement of existing views and development of new ones is brought about by new concepts, and are accompanied by the creation of new terms or the redefinition of existing ones. As concepts of any discipline depend on and complement each other, any theoretical or methodological refinement would undoubtedly have direct or indirect implications for the terminological systems of that discipline. Chomsky's views, for example, have been constantly reviewed by himself and many others producing various theoretical approaches and terms. Language has also attracted broad interdisciplinary research leading to variation in perspective and inconsistency in terminology as linguists and interdisciplinary specialists hold different views about language and use different technical terms.

Different languages also exhibit different structural features, which require different sets of technical terms to describe them. As linguistics widened its scope to investigate and describe African languages, for example, new linguistic concepts were developed, theories restructured and new terms created (Clements, 1989: 14-15).

In addition to conventionality, changeability and variation, dealing with abstract entities, or theoretical concepts, related to the nature, structure and use of language leads to diversity in conceptualization and definition of phenomena by linguists and interdisciplinary specialists, and subsequently diversity in terminology. This is because abstract theoretical concepts are liable to greater variation in expression than the concepts associated with concrete elements. Thus, there are always fewer fixed terminological units in the former group than in the latter (Kesselman, 1986: 107).

Abstractness of aspects of language and diversity in theoretical points of view and terminology seriously affect conceptualization and interpretation in the process of translation. In addition, complications associated with diversity in language structure and culture occur. In translating linguistic terminology from English into Arabic many terms have been interpreted differently by different Arab translators and terminographers, producing different translations. The term 'communication', for example, is translated differently as *'iisaal*, *'iblaagh*, *tawṣiil*, *'i'laam*, *takhaaṭub*, *ittisaal*, *tawaasul*, and *tabliigh* (cf. al-B'albakkii, 1990, ALECSO, 1989 and Ghazaalah, 1996). The term 'utterance' is translated as: *qawlah*, *qawl*, *kalaam*, *nutq*, *manṭuuq*, *malfuuz*, *maquulah*, and *hadiith* (cf. al-B'albakkii, 1990, ALECSO, 1989, Bakalla et al, 1983, al-Khuulii, 1982 and Ali, 1993: 407). The term 'clause' has been translated in relation to the concept of 'sentence', producing translations such as: *jumaylah*, *shibh jumlah*, *jumlah naaqisah*, *jumlah sughraa*, and *'ibaarah* (cf. *Ibid*). Different translations have also been proposed for the term 'morpheme' emphasising either its abstract, structuralist or functional aspects, thus: *wahdah binyawiyyah sughraa*,

ṣarfiyyah mujarradah, daallah nahwiyyah, 'unṣur daall, wahdah ṣarfiyyah, murfiimiyyah, murfaam, ṣaygham, ṣarfiim, murfiim (cf. *Ibid*).

2.2.2. Recency of linguistics and its implications for terminology

Compared with other sciences, linguistics is still a recent science¹, a fact reflected in the attempts exerted to establish the theoretical and methodological frameworks necessary for the establishment of the identity and frontiers of the discipline, and in the continuous flow of terms and the absence of standardization. Following Bolinger (1968: 554), “one sign of immaturity [in a science] is the endless flow of terminology”. This flow of terminology constitutes problems for both specialists of the discipline and translators of its literature into other languages, and can only be controlled through standardization. In linguistics, many concepts related to some linguistic domains have not yet gained terminological unanimity among linguists such as the concepts referred to by the terms ‘denotation’, ‘reference’ and ‘designation’², despite the terminological distinctions made by contemporary prominent linguists (Lyons, 1977/1: 205).

The implications of the recency of linguistics are also clear in the declining dependence on Greek and Latin in the creation of terminology following the decline in competence in both languages. This is reflected in the lack of more commonly established methods of term creation and designation, which in other sciences were the basis for systematic nomenclature and standardization (Sager et al, 1980: xvii).

For translators of linguistic terminology in general, the recency of linguistics directly influences their practice in two ways. On the one hand, linguistics has great implications for translation, since the development of the methods and techniques of the latter discipline are directly affected by theoretical and methodological

¹ It was the beginning of the twentieth century that marked the birth of modern linguistics when de Saussure called for a shift from diachronic to synchronic studies (cf. Sampson, 1980: 13).

² See for example: Bell (1991: 98).

advancement in the former. On the other hand, the lack of unanimity and standardization in linguistics negatively affects interpretation and conceptualization in the process of terminological translation, as different translators tend to give different translations based on different interpretations.

For the translators of linguistic terms from English into Arabic these disadvantages are further complicated by the recency of modern linguistics in Arabic and the tendency to reconcile modern linguistic terminology with those of the Arabic linguistic tradition. Modern linguistics in Arabic has not yet gained a fully established academic status equal to that in the West. So far, almost all Arab countries have not yet established departments of linguistics in their universities.

2.2.3. Metalinguistic nature of linguistic terms

In linguistics, language is used to describe language. This metalinguistic function allows a particular language, such as English, to be the object language and the metalanguage at the same time. Distinction between the object language and metalanguage makes the linguist's work easier. In case of both being the same, notational conventions are normally used. Being used metalinguistically, terms can be a source of conceptual confusion and referential overlapping. A term is sometimes used to refer to a word, its meaning or its written or spoken forms. Without notational conventions complete distinction between the different senses of the term would be impossible. Linguists often use different, and sometimes, inadequate notational conventions, leading to misconceptualization (Lyons, 1995: 23-24 and 1981: 46-47). Further problems occur when the entities referred to by the terms are abstract, such as 'meaning', 'concept', 'paradigm', etc. Failure by the translator to identify the metalinguistic uses of a term and the distinctions made through notation can lead him or her to misconceptualization. In the TL, unless the same or other adequate notation is adopted, the TL terms will also be misconceptualized and misinterpreted by the TL readership.

2.2.4. Terminological diversity and its effect on translation

Although linguistics developed out of comparative philology, it is still a diversified collection of theories, the adherents of which do not share a unified perspective, focus or terminology (Mackey, 1990: 103). As Lyons points out

“there is not yet, and may never be, a satisfactory theoretical frame-work within which we can view language simultaneously from a psychological, a sociological, a cultural, an aesthetic and a neurophysiological point of view (not to mention several other equally relevant view points)”. (Lyons, 1981: 36, 37)

Different linguistic domains, schools and theoretical frameworks have been developed since the emergence of modern linguistics, each building upon its predecessor, but with more or less different perspectives, techniques and terminology. Characteristically different approaches have evolved from major schools such as Structuralism and Generativism. Some of these approaches have developed separate theoretical models with different methods and terminologies, such as Glossematics, Tagmemics, Stratificational Grammar, Systemic Grammar, Case Grammar, Montague Grammar, X-Bar Theory, etc.

In some cases, the development of different terminologies had regional and cultural grounds because scholars using different languages and meeting separately in Prague, Copenhagen or London, for example, had to define their own concepts and use terms that fulfilled their research needs in the light of their theoretical models. After successive years of deliberation, different terminologies evolved reflecting more or less different conceptual systems pertaining to separate approaches. Many linguistic terms ended up being used synonymously or polysemously (Mackey, 1990: 108-110).¹ Thus, working at different locations but using the same terms, scholars had different views of some concepts and defined them differently. The concepts of ‘phoneme’ and ‘phonology’, for example, have been defined differently by schools

¹ However, linguists of different schools, trends or approaches share more or less basic notions, concepts and terms that had originally shaped the concept of modern linguistics through works of prominent scholars such as de Saussure, Sapir, Boas and Bloomfield.

or major linguists.¹ Similarly, diverse translations are given to both terms in Arabic. ‘Phoneme’ is translated differently as *ṣawṭ mujarrad*, *ṣawṭ lughawii*, *lafẓ*, *mustaṣwiṭ*, *waḥdah ṣawṭiyyah ṣuḡhrah*, (cf. al-B‘albakkī, 1990), *waḥdah ṣawṭiyyah mumayyizah* (cf. Bakalla et al, 1983) and *ṣiitah* (Ali, 1993: 214). ‘Phonology’ is translated as *ṣiwaatah*, ‘ilm *waṣṣā’if* al’*aṣṣāat*, ‘ilm al-tashkiil al-*ṣawṭii*, al-*nutqīyyaat* (cf. al-B‘albakkī, 1990), al-*ṣawṭiyyaat* al-*waṣṣīfiyyah* (cf. ALECSO, 1989), al-*ṣiyyatah* (cf. Ali, 1993: 403) and *nizāam al-ṣawṭ* (Catford, 1965b: 177).

The ‘basic unit’ of grammatical or lexical analysis has also been terminologically expressed differently as ‘morpheme’ by the American structuralists, and ‘*moneme*’ by Martinet. The latter uses the term ‘morpheme’ for what other linguists call ‘bound grammatical morpheme’, and ‘*semanteme*’ for what they call ‘free lexical morpheme’ (cf. Bussmann, 1996: 310). In translation, this diversity in terminological expression can lead to conceptual and/or terminological diversity in the TL. In Arabic, for example, ‘*moneme*’ is rendered as ‘*unṣur daall*, *murfiim*, and *muniiim*. ‘*Semanteme*’ is translated as *waḥdat al-dilalah*, *daall al-maahiyyah*, *daallah ifraadiyyah*, *ma‘naa ifraadi*, *ma‘naa al-mufradah*, *waḥdat taḥlīl al-ma‘naa* or *madlal* (cf. al-B‘albakkī, 1990, al-Khuulī, 1982 and ALECSO, 1989).

2.2.5. Employment of traditional and modern terms

The roots of modern linguistics go back to traditional grammar and historical philology. The development of linguistic research was accompanied by an accumulation of technical terms that reflect different historical, theoretical and methodological perspectives. Linguistic terminology can be divided roughly into three types: (1) traditional terminology related to prescriptive linguistic studies and classical grammars, (2) philological terminology related to historical linguistics of the

¹ The Prague School defines the ‘phoneme’ in terms of a bundle of abstract distinctive features or oppositions between sounds, stressing the functional aspect of phonemes. Jones regards the ‘phoneme’ as a family of related sounds, but not as oppositions. The American structuralists based their definition on distributional criteria. Later, generative phonology developed its own approach, in which instead of the ‘phoneme’, distinctive features of a universal character are considered the basic units of the phonological description. (cf. Trubetzkoy, 1958: 37-44, Bloomfield, 1933: 136 and Crystal, 1997: 287-288).

nineteenth century, and (3) modern linguistic terminology related to the development of synchronic studies (cf. Pei and Gaynor, 1954: i). In achieving their research objectives, modern linguists had to refine or reject many existing traditional or philological concepts and related terms. Some terms were re-defined and used in addition to completely new ones. A major reason for the rejection or re-definition of traditional terms is that modern linguistics is not only concerned with European languages, but with the structural features of all languages¹.

The multiplicity of the sources of linguistic terms can lead to diversity in conceptualization and expression for translators. The following table shows how some English-Arabic terminographers confuse traditional with modern concepts:

Table no. (2.2.1)

SL Terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990
Subject	<i>mubtada'</i> + <i>musnad 'ilayh</i>	<i>musnad 'ilayh</i>	<i>musnad 'ilayh</i> + <i>al-mawduu'</i> + <i>al-faa'il</i> + <i>al-mubtada'</i>	<i>musnad 'ilayh</i>
Predicate	<i>khavar</i> + <i>mahmuul</i> + <i>musnad</i>	<i>al-musnad</i> + <i>al-khavar</i>	<i>al-musnad</i> + <i>al-mahmuul</i>	<i>musnad</i>
Topic	<i>mubtada'</i>	<i>al-mawduu'</i> + <i>al-musnad</i> <i>'ilayh</i>	<i>mawduu'</i> + <i>al-muhaddath</i> <i>'anhu</i>	<i>mubtada'</i>
Comment	<i>ta'liiq</i> + <i>khavar</i>	<i>al-khavar</i>	<i>khavar</i> <i>jumlah</i> + <i>musnad</i>	<i>khavar</i>
Theme	<i>mawduu'</i>	<i>al-ma'naa</i> <i>al-ra'iisii</i>	<i>al-musnad</i> <i>'ilayh</i>	<i>mawduu'</i>

¹ See also Nida (1946: 4).

Rheme	<i>khavar</i>	-	<i>al-musnad</i> + <i>al-mahmuul</i>	<i>ta'qib</i>
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2.2.6. Use of terms from other disciplines

The special language of a discipline can contain linguistic units of general reference that are not specific to any discipline, as well as items that are peculiar to a given discipline. Many items are employed in more than one discipline, owing to the overlap between them. A discipline may also borrow a technical term used in another discipline to fill a gap in its terminological system. Borrowed items are usually adopted to represent specific conceptual properties, and this means that their semantic values do not always stay the same. Thus, borrowed items may function as different terms in different special languages, such as the term 'entropy' in thermodynamics and linguistics (Sager et al, 1980: 75).

In fact, many of the technical terms used in linguistics originally belonged to other older or more established disciplines. Technical terms enter linguistics as a result of borrowing or by assimilation from neighbouring disciplines. Linguistic semantics, for example, uses terms from logic and philosophical semantics such as 'argument', 'intension', 'extension', 'axiom', 'deontic', 'universe of discourse', 'denotation', 'connotation', 'proposition', 'category' and 'predicate'. Terms from mathematics include 'device', 'function', 'set', 'operator', 'formula', etc. Phonetics uses terms from physics (e.g. spectrograph, sound waves, wave motion, vibration, spectrum, amplitude, etc.) and physiology (e.g. vocal cords, larynx, etc.). Terms from information science, neurology, pedagogy, epistemology, chemistry, psychology, sociology, literature, anthropology, biology, and communication engineering have also entered the linguistics domain.

The above situation may lead to referential overlapping or even confusion. The term 'thesaurus', for example, refers to different concepts in information science,

literature and linguistics (*Ibid*: 242). The terms ‘communication’ and ‘noise’ though widely used in linguistics still bear some connotations and characteristics peculiar to communication engineering where they originally belong. This situation has affected translations of linguistic terminology into Arabic. The sense of ‘contact through technological means’ associated with the term ‘communication’ has led some translators to render it as *’ittisaal*, thus restricting it to the meaning of ‘contact’, even when it is contextually used to mean ‘the process of conveying a certain message’, for which *’iblaagh* is used in Arabic. Likewise, the term ‘noise’ is used in linguistics to refer to “any undesirable interference in the transmission of information” (Hartmann and Stork, 1972: 151). In their translation into Arabic of this term, some Arab terminographers and translators are affected by the sense of the term as used in communication engineering, restricting its meaning to mere ‘sound effects’. Thus, they translate this term as *dajij* and *dawdaa*, even when it is intended to mean ‘all factors affecting the faithful transmission of the message’, for which *mu’athiraat khaarijyyah* or *’i’aaqah* can be used in Arabic.

2.2.7. Use of terms from other languages

The terminology of linguistics in English includes many terms borrowed from other languages by linguists originally using English (e.g. *taboo* from Tongan, *sandhi* and *dvandva* from Indian), and by linguists using other languages (e.g. *langue*, *parole*, from French, and *gestalt* and *umlaut* from German). Adoption of foreign terms was due to the specificity of those terms and/or failure, on the part of linguists using English, to find proper equivalents for them.¹ The problem arising from this is that in many cases the borrowed terms are interpreted differently by different linguists in English and this leads to differences between translators in

¹ Following Mackey (1965:30) “linguistic theories are not all written in the same language. The different languages in which they are written do not all have the same number of words for linguistic concepts, and even in cases where they do, the counterparts do not cover the same area of meaning. English, for example, has only the words *language* and *speech* to do the work of the French *langue*, *langage*, and *parole*. The English word *language* is not always equal to French *langue* [...]. In translating theories from one language to another, it has become the practice to preserve the key words in the original language in which the theory was first expressed”

conceptualizing and translating these terms. Saussure's term '*parole*', for example, has been translated differently into Arabic by different translators as follows: *maqdirah lughawiyyah* in al-Khuulii (1982), *lughah*, *lisaan* and *al-waḍ'* in ALECSO (1989), *al-lughah* in al-B'albakii (1990) and *al-lughah al-mu'ayyanah* in Ali (1993: 18). Likewise, the term '*umlaut*' has been differently translated or transliterated as '*imaalah*' in ALECSO (1989), *al-umlawt* in Bakalla et al (1983), *taghayur al-ṣaa'it* in al-Khuulii (1982), and '*ibdaal ṣaa'itii*' in al-B'albakii (1990).

2.2.8. Use of the same terms in different linguistic fields for different concepts

Variation in linguistic research has resulted in increased strains on the resources of language. Many linguistic terms have been re-employed through metaphor, metonymy and polysemy (cf. Sager et al, 1980: xvi) to refer to different concepts in different linguistic fields or sub-fields. This can be a source of difficulty for the translator, especially in denotatively close cases. Examples include 'code', which is used in general linguistics, sociolinguistics, information theory and computational analysis; 'basic form' in grammar, and language teaching; 'construction' in grammar and psycholinguistics; 'creativity' in morphology and stylistics; 'modulation' in phonetics and translation studies; 'jargon' in general linguistics and neurolinguistics; 'idiolect' in sociolinguistics and stylistics; 'derivation' in morphology, generative grammar and historical linguistics; 'pidginization' in sociolinguistics and applied linguistics; etc.

2.2.9. Ambiguity of some linguistic terms

Some linguistic terms in English are intrinsically ambiguous, while others develop ambiguity through use. Intrinsic ambiguity can be divided, following Lyons (1995: 21, 22, 35), into at least two kinds: process-product and system-product ambiguities. Terms such as 'translation', 'utterance', 'discourse', 'conversation', 'production', 'creation', 'composition', 'construction' and 'performance' have both a process-sense,

which denotes a specific kind of behaviour (the act itself), and a product-sense, which denotes the physical product or products of that behaviour or act. Terms ending in -ization also fall under this category. The terms 'language' and 'grammar' have both a system-sense and a product-sense. This is also applicable to many expressions containing the word 'language', such as 'language acquisition', 'language development', etc.

Use-related ambiguity develops through loose definitions or double function. For example, 'context' is used for linguistic and situational environment (Crystal, 1997: 87-88), 'concept' for the mental image and for the postulated extra-mental entity (Lyons, 1977/I: 111), 'information' for both signal-information and semantic-information (*Ibid*: 41), 'word' as a spoken or written form and as a composite expression (Lyons, 1995: 46), and 'grammar' for the native speaker's internally represented theory of his language (competence) and for the linguist's account of it (Beaugrande, 1991: 152, 153).

In translation, unless contextually conceived or made clear through notational conventions or glosses the meanings of such ambiguous terms can be misleading in rendering the terms themselves and in rendering other morphologically related terms. The adjectival term 'linguistic', for example, can be language-related or linguistics-related. 'Performance' can be translated in its process-sense or product-sense. 'Concept' can be translated in terms of 'mental image' as *mutaṣawwar*, or in terms of 'conception' as *mafhuum*.

2.3. Word-formation and its implications for terminological translation

Terminologically, 'word-formation' refers to at least three linguistic concepts: (1) the process of forming lexical syntagmas, (2) the product of this process, i.e., the syntagmas themselves, and (3) the branch of study that deals with issues related to both process and product. As a process, word-formation involves formal and

semantic analogy in which a pattern or paradigm of similar items becomes established, and to that pattern new coinings conform (Quirk et al, 1985:1521). Thus, word-formation is the basis of productivity as a defining feature of human language. On the basis of 'phoneme', for example, other terms are coined such as 'morpheme', 'claseme', 'glosseme', 'sememe', etc., and on the basis of 'dialect' other terms are coined such as 'acrolect,' 'idiolect', 'sociolect', etc.

In vocabulary building, processes of word-formation such as derivation and compounding fulfil two objectives: (1) closer determination of a concept by narrowing its intension, and (2) showing the relationship between the resultant concept, its origin and related concepts (Sager, 1990: 70 ff.). As languages structurally vary, each language has its formal methods for indicating the relation of a secondary concept to the main concept of the radical element (Sapir, 1921: 59). English, for example, relies heavily on suffixation and prefixation in deriving lexically, morphologically and semantically related concepts. From the form 'nation', for example, the following derivatives are generated, each representing a separate, but lexically, morphologically and semantically related concept:

nation-al
 nation-al-ize
 nation-al-ization
 de-nation-al-ize
 de-nation-al-ization
 anti-de-nation-al-iz(e)-ation
 pre-anti-de-nation-al-iz(e)-ation (data from Katamba, 1993: 53).

Arabic, in contrast, relies on the manipulation of *al-ṣiyagh al-ṣarfiyyah* (morphological patterns or moulds) in generating derivatives representing various types of lexically, morphologically and semantically related concepts (cf. 2.4). Thus, through derivation, the systematic nature of language is utilised to create "a vast network of relations [...] called the Derivational System" (Gunter, 1972: 1, 2).

Word-formation processes are most exploited in specialist languages to develop terminologies for use in a particular discipline or a set of related disciplines. Through word-formation devices, special languages can achieve morphological concision, transparency and consistency. In linguistics, for example, the suffix *-eme* and the combining form *allo-* are employed to form nouns denoting ‘units of structure’ and ‘variant forms’ respectively, as the following examples illustrate:

chrone	chroneme	allochrone
graph	grapheme	allograph
morph	morpheme	allomorph
phone	phoneme	allphone
tone	toneme	allotone

Prefixes are also employed to create sets of sense-related terms such as ‘pre-modifier’ and ‘post-modifier’. Thus, the creation of term families from basic roots and stems contributes to terminological unity and creates patterns of recognition that facilitate the interpretation of new information and the systematic designation of new concepts (Sager, 1990: 113). Morphological concision is also achieved through other word-formation processes such as abbreviation, blending and acronymy.

Having highlighted some aspects of the significance of word-formation, let us now consider very briefly some of its implications for terminological translation. Semantically, available lexical elements in the TL do not usually correspond intensionally and extensionally to the SL terminological syntagmas. This usually leads to conceptual discrepancy. Therefore, in some cases, it is necessary to create lexical equivalents in the TL for SL terms because paraphrasing is not favoured in terminological translation. Lexical gaps are sometimes filled by direct borrowings, but these can break morphological relatedness between terms in the TL and may not be easily adapted to the TL morphological and phonological systems. Morphologically, concise terms in the SL may not have similarly concise TL equivalents (e.g. *phoneme* vs. *al-wahdah al-sawtiyyah*; *decontextualization* vs. *al-tahyiid al-siyaaqii*). Long terms do not easily permit further derivation, a quality

usually required in a technical term to meet future terminological needs. When compounding is used, however, the resultant terms are always longer. If 'phoneme', for example, is translated as *al-wahdah al-sawtiyyah*, the translation of 'phonemics' will be *'ilm al-wahdaat al-sawtiyyah*.

Further ramifications emerge in translating word-formation syntagmas created by acronymy, blending and abbreviation, especially in languages that lack these word-formation devices. In translating acronyms and blendings, equivalence, though relative, is always at the expense of economy. For example, the acronyms 'ANCOVA' (analysis of covariance), 'ANOVA' (analysis of variance), 'CALL' (computer assisted language learning) and 'CALP' (cognitive academic language proficiency) in applied linguistics (Richards et al, 1992) are rendered in Arabic through long translation equivalents - normally loan-translations of their full syntagmas -, paralleled abbreviations or direct borrowings. The last two solutions are usually not favoured in Arabic on morphological and phonological grounds.

A morpho-semantic implication that word-formation patterns usually have for translating technical terms is that related to maintaining morphological and semantic consistency in translating sets of related terms. We may exemplify this by the following terms: 'homonomy', 'homophony' and 'homography'. Each of the terms of this set is composed of the combining form *homo-* with the sense of 'same or equal', a suffix denoting a specific entity (*-phone*, *-nym*, *-graph*) and the suffix *-y*, which forms nouns of quality, state or condition (NSOED). To maintain the same symmetry in Arabic, the combining form *homo-* and the suffix *-y*, have to be rendered by morphological elements which maintain consistency throughout as in *al-tamaathul al-lafzii*, *al-tamaathul al-sawtii* and *al-tamaathul al-'imlaa'ii* respectively.

Pragmatically, TL terms formed through any of the word-formation methods have to be potentially capable of achieving the same communicative functions achieved by the SL terms. This can be achieved if the formation of the TL terms takes into consideration as much as possible of the presupposed and/or entailed information

in the SL terms by using TL elements that have the closest equivalent semantic functions.

Finally, word-formation in terminological translation is motivated by existent terms in the SL. This involves close reference to the formal components of the SL terms (Sager, 1990: 80-81), which may result in the reflection of some aspects of the formal structure of the SL terms in the TL equivalents. The TL equivalents may, therefore, lack transparency, naturalness and/or precision, such as the translation equivalents *ṣawtiim*, *ṣarfiim* and *harfiim* given by al-Khuulii (1982) for ‘phoneme’, ‘morpheme’ and ‘grapheme’ respectively. In these translation equivalents, al-Khuulii employs the same English suffix -eme to form partially opaque equivalents in Arabic. In another case, al-Khuulii (1982) uses the technique of *naḥt* (blending) to give *thinḥarf* (from *thunaa’ii* and *ḥarf*) and *thilḥarf* (from *thulaathii* and *ḥarf*) for ‘digraph’ and ‘trigraph’ respectively, creating problems of linguistic processing.

2.4. Word structure and word-formation in Arabic

Because our discussion in the following chapters will deal with the translation of some English derivational suffixes into Arabic it would be helpful to acquaint the reader with the nature of word structure in Arabic and how words are usually formed.

Generally speaking, words in Arabic are made up of at least two components: *al-maaddah* (lit. the root) and *al-siighah al-ṣarfiyyah* (morphological pattern or mould). The root in the vast majority of Arabic words consists of three radicals that carry the raw elements of the lexical meaning of the word, such as (*j-l-s*) which carries the general meaning related to ‘sitting’ in the words: *jalasa* (he sat), *yajlis* (he is sitting or he usually sits), *yujaalis* (he usually sits with), *jaalis* (a sitter), and *majlis* (a place for sitting). Each of these words also consists of a *siighah ṣarfiyyah*, which moulds the root to produce the final shape of the word that gives it its full lexical meaning, part-of-speech and grammatical function. Thus, the morphological pattern *FA’ALA* in *jalasa* (he sat) indicates that it is a verb in the perfect form, *YAF’IL* in

yajlis (he is sitting or he usually sits) indicates that the item is the imperfect form of the verb, *YUFAA'IL* in *yujaalis* (he usually sits with) indicates reciprocity or co-action in the present, *FAA'IL* in *jaalis* (a sitter) indicates the active participle or agent, and finally *MAF'IL* in *majlis* (a place for sitting) indicates the place where the action usually takes place.

Derivatives of different roots may assume one and the same morphological pattern, in which case they are all rendered capable of conveying the functional sense represented by that pattern, while at the same time maintaining their respective lexical meaning (Ali, 1987: 12). The words *masbah* (swimming pool), *maktab* (office), and *madhbaḥ* (slaughter-house), etc. all share the same morphological pattern *MAF'AL*, which denotes 'the place where the action of whatever the verb denotes usually takes place'. In Arabic, there are other patterns to denote the notions of agent, instrument, time of action, diminutive form, causativity, patient, disease, etc. (Wright, 1859/I: 29-52). This, however, does not necessarily apply to the patterns that underlie strong (i.e. non-derived) nouns, which denote concrete or abstract entities such as *rajul* (man), *baqar* (cattle), *shajar* (trees), *zaman* (time) and *nuur* (light).

In brief, Arabic forms its vocabulary items according to specific morphological patterns, which are themselves capable of certain types of functional denotation. The denotative capacity of these patterns is obviously a result of their occurrence in the language with different roots assuming more or less the same denotative function (Ali, 1987: 36).¹

In modern descriptive terms, the root in Arabic can be regarded as a pure lexical morpheme and the *ṣiighah* as a grammatical morpheme. It is only when the word takes its final shape as a composite form composed of the root and the pattern it

¹ On this aspect of Arabic morphology see: al-Astrabaadhii (1975), al-Ḥamallaawii (1965) and Wright (1859/ I).

can be said to be a lexeme with full lexical meaning.¹ As a non-concatenative language, Arabic differs structurally from English, which relies heavily on affixation in generating new vocabulary items. A suffixational syntagma in English, for example, is a combination of a base and a suffix, which act as a determinant and determinatum. The determinant normally precedes the determinatum and represents the new information or the differentiating element. The determinatum follows the determinant and denotes the identified element (Lipka, 1992: 79). In Arabic, the determinant is the root and the determinatum is the morphological pattern. Suffixation takes place in Arabic to express inflectional notions and relations such as person, number and gender. Prefixation is also used, but it has a restricted range as in definition through the use of the definite article *al-* in *al-walad* (the boy).²

Word-formation in Arabic is mainly carried out through *al-ishtiqaq* (lit. derivation)³ and compounding. Another two minor processes for lexical creation are *al-ta'riib* (lit. direct borrowing) and *al-naht* (lit. blending).

Al-ishtiqaq operates through the productive employment of *al-siyagh al-sarfiyyah* to create new vocabulary items with new lexical meanings. The morphological patterns *MIF'AL* and *MIF'ALAH*, for example, can produce a variety of new lexical items that denote the 'instrument by which some thing is done' such as *misma'* (lit. the instrument by which one can hear) and *mirsamah* (lit. the

¹ On the description of Arabic in the light of modern linguistics see: Ali (1993), Hassaan (no date), Ali (1987) and Owens (1988).

² On affixation in Arabic see: Hassaan (no date: 156)

³ *Al-ishtiqaq* refers to three types of word-formation devices, namely *al-ishtiqaq al-saghiir* (lit. minor derivation), *al-ishtiqaq al-kabiir* (lit. major derivation), which is also called *al-qalb* (lit. modulation) and *al-ishtiqaq al-'akbar* (lit. greater derivation), which is also called *al-'ibdaal* (lit. substitution). *Al-ishtiqaq al-saghiir* operates through the productive employment of *al-siyagh al-sarfiyyah* to create new vocabulary items with new lexical meanings. *Al-ishtiqaq al-kabiir* involves the process of reversing the order of the phonemes of a word to produce another with the same meaning such as *jabadha* from *jadhaba* (to pull or draw); *tasama* from *tamasa* (to efface, wipe out or destroy); etc. This type of derivation can create new lexical items, but with the same meanings as their base forms. Therefore, practically this type of derivation is of little use for developing technical vocabularies. Likewise, *al-ishtiqaq al-'akbar* has no functional productivity because it is merely a process of phonological substitution whereby specific sounds are replaced by closely articulated sounds to produce slightly different words with almost the same meaning such as '*unwaan* and '*ulwaan* (lit. address or title). Thus, *al-ishtiqaq al-saghiir* is the derivation device most often used in word-formation in the language (cf. al-Msaddii, 1984: 31-34). The term *al-ishtiqaq* or just 'derivation' will be used throughout to refer to it.

instrument by which one can draw). *Al-ishtiqaq* is a form of analogical creation whereby new lexical items are created from other words on the basis of already existing patterns of word-formation (*al-siyagh al-sarfiyyah*) as in using *FA'‘ALA* in *hajjara* (fossilise or make like stone), *TAF‘UL* in *tahajjur* (fossilization or becoming like stone), *TAF‘IL* in *tahjiir* (fossilizing or making like stone), and *MUTAF‘AL* in *mutahajjar* (fossilized or stone-like) from *hajar* (stone). *Al-siyagh al-sarfiyyah* can create associations between derivatives and lexical sets with significant potential for terminological systematization.

Arab linguists, translators and terminologists use analogical derivation to modernize the lexical inventory of Arabic by making systematic use of the denotative functions of morphological patterns. This is carried out through the assignment of these patterns to specific specialized meanings in order to cope with the influx of technical terms into the language. These efforts include reviving dormant morphological patterns to create new terminologies.¹

Compounding in Arabic refers to the creation of a new word by combining two or more existing words to denote an entity different from those denoted by its constituent parts, as in *tadwiin al-lughah* (language codification), which is made up of *tadwiin* (codification, recording) and *lughah* (language).

Al-naht is the formation of a new word by combining parts of two or more words, as in forming the verb *basmla* (to say *bismi-llahi al-rahmaan al-rahiim*) from the phrase *bism Allah*. This process of blending is not a usual device of word-formation in Arabic. In terminology translation it is always controversial because it produces morphologically unfamiliar and semantically opaque words, which are also of limited amenability to further derivation. Examples are: *shibjumlah* (from *shibh* and *jumlah*) for translating the term ‘phrase’, *qabsaamitii* (from *qabla* and *saamit*)

¹ For details on this issue see: al-Jaliilii (1983), ‘Aniis (1967), al-Shihaabii (1965), al-Shihaabii (1961), ibn ‘Aashuur (1961), al-Kawaakibii (1961a), al-Kawaakibii (1961b), al-Kawaakibii (1962a), al-Kawaakibii (1962b), al-Khatiiib (1982) and al-Malaa’ikah (1983: 103-108).

for translating 'pre-consonantal', and *fawqit'ii* (from *fawqa* and *maqta'*) for translating 'suprasegmental' (cf. al-B'albakii, 1990).¹

Finally, metaphor is another method of generating new vocabulary items from already existing ones. This method consists in the metaphorical employment of existing simple or complex words to designate newly introduced entities. In developing modern terminologies, Arab linguists and translators employ metaphor to designate new concepts, such as the use of '*ajamah* (kernel) for translating 'lexeme' (Ali. 1993: 401).

2.5. Nature of English suffixes: implications for terminological translation

Technical terms in English rely heavily on suffixation as a word-formation process. This is because "suffixes do more of the formative work of [the] language" (cf. Sapir, 1921: 67) than prefixes. Through recursiveness, suffixes are manipulated to create semantically and syntactically motivated derivative terms, as in forming 'contextual', 'contextualize', 'contextualization' and 'contextualizational' from 'context'.²

English suffixes are etymologically heterogeneous and many are used synonymously and/or polysemously³. The concept of 'science or field of study', for

¹ On the nature and controversy of *al-naht* in Arabic see: al-Hamzaawii (1988: 447-483), al-Msaddii (1984: 29-31), al-'Alusii (1988), al-Bataaynah (1990), al-Samman (1982a), al-Sammaan (1982b), al-'Usta (1994), Minajyaan (1972), al-Hamzaawii (1986b: 43-45), Ali (1987: 60-83) and al-Malaa'ikah (1983: 113-117).

² On recursiveness in suffixation see: Bauer (1983: 69 ff.)

³ The diversity of the origins from which English acquired its present suffixes during the different phases of its development, etymologically allows for the classification of these suffixes into three groups: (a) vernacular suffixes, mainly derived from Old English and other Germanic languages, such as -ish, -hood, -ness, -ing, etc., (b) Romance suffixes from French and Latin such as -al, -ity, -ance, -ent, -ation, etc., and (c) Greek suffixes, acquired mainly through Neo-Latin and French, such as -ic, -ics, -ism, -olgy, -ique, etc. Some suffixes such as -ness allow no other suffixes to be added to them, but others can associatively or cumulatively form related sets such as -ist, -ism and -ise, of the first type, and -ist, -istic, -istical and -istically, of the second. Derivational paradigms with good potential for semantic and grammatical employment are produced out of such sets. Paradigms of vernacular suffixes are used more in general language than special language whereas neo-Latin paradigms are more exploited in special language, especially in the construction of technical vocabularies (McArthur, 1992: 1000).

example, is expressed by the suffixes -logy and -ics. The term 'morphology' can mean 'the science of the study of the structure of words', or 'the morphological structure or system' of a particular language'. The term 'terminology' can mean 'science of' and 'collection of' technical terms.¹

Ambiguity of great many linguistic terms is attributed to the semantic nature of English suffixes. In translation, the semantic function of suffixes is determined through the context. The terms 'interpretation', 'formation' and 'palatalization', for example, can either mean 'the act of', in which case they are abstract nouns, or 'the result of that act', in which case they refer to concrete entities (cf. 2.2.9). In addition to the task of determining the contextual meaning of the suffix, the translator has to establish how it contributes to the construction of the target terminological system in three ways: (1) morphologically through its morphological relations with other radical and derivative terms; (2) semantically through its contribution to the establishment of ontological and logical relations between concepts; and (3) pragmatically through the indication of presupposed and/or entailed elements of information.

¹ Newman's remark in this respect is not too extreme when he says: "the most subtle problem in dealing with English suffixes is that of adequately defining their meaning" (1948: 33). "No simple relation between form and function can be assumed among English suffixes. Each suffix expresses several semantic functions, and, conversely, each function is expressed by several formal processes. The intricate overlapping of form and function in English necessitates a careful definition of each suffix with reference to the total set-up of semantic categories expressed in the language" (*Ibid*: 34).

Chapter III

Translating the suffixes -able and -ization

3.1. -able

This suffix has probably received more extensive discussion by Arab translators and terminologists than any other English suffix.¹ This is mainly due, first, to the lack of a thorough analysis of the semantic nature of this suffix in English, and, second, due to the desire to render a variety of meanings expressed in English by this semantically inconsistent suffix through the employment of only one or two morphological patterns in Arabic. Despite the extensive discussion of this suffix in the literature, Arab translators and terminologists have not achieved unanimity of opinion or consistency in the method of translating technical terms containing this suffix.

Before we start our discussion of this suffix from the point of view of terminological translation, let us first consider its linguistic nature. According to the OED, this suffix comes from the French suffix *-able*, which etymologically goes to Latin (*-abilem*). Originally, -able was found in English only in words from Old French, but later by the analysis of such syntagmas as 'pass-able', 'agree-able' and 'amen-able' it was treated as an independent suffix, and freely employed to create analogous adjectives from French and native words, such as bearable, speakable and wearable. Formal association with the adjective *able*, to which this suffix is not related, seems to have initiated this extension in the employment of the suffix so that 'eatable', for example, is understood as eat + able, i.e. able to be eaten (OED). According to Quirk et al (1985: 1555), the variant forms -ible and -uble, found in many adopted words, are not productive in English.

¹ See for example al-Malaa'ikah (1981) and Ali (1987: 48-50).

This suffix is attached to both verbs and nouns to create deverbal and denominal adjectives (Marchand, 1969: 229-230).¹ In some cases, it is also attached to borrowed bound roots. Semantically, deverbal adjectives in -able can either have an active or passive sense or, in some cases, both. When appended to transitive verbs this suffix can form “adjectives with the [passive] sense able, or liable, or allowed, or requiring, or bound, to be [V]-ed” (Fowler, 1996: -able), such as obtainable, justifiable, acceptable, eatable, valuable, commendable, payable, etc. As these examples show, this type of adjectives is not semantically regular and cannot be consistently paraphrased by means of a modalized passive predicative phrase: ‘can be obtained’, ‘can be paid’ etc., because contextually they can either imply possibility, necessity or obligation (Lyons, 1977/II: 532). When appended to intransitive verbs, -able can form adjectives with an active sense, which can be paraphrased as ‘able to do’ rather than ‘able to be done’, such as agreeable, variable, stable etc. Some adjectives may have both senses such as changeable and passable, because they are derived from dual verbs. All the above mentioned deverbal adjectives can be analysed in terms of the formula ‘verb + -able = adjective’ and, therefore, they are morphologically regular. There are other adjectives ending in -able, however, which are morphologically irregular because they contain no verb stems from which they can be said to have been derived, such as feasible, audible, legible, edible, intelligible and visible. These adjectives consist of bound roots and the variant -ible. Although there are no English verbs with the stems feas-, aud-, leg-, ed-, intellig-, and vis-, semantically, these adjectives can be interpreted in terms of the formula (V + -able = A). In other words, ‘feasible’ can be interpreted as ‘can be expected or implemented’, ‘legible’ as ‘can be read’, ‘audible’ as ‘can be heard’,

¹ Aronoff (1976: 48) argues that -able, on this basis, represents two functionally different suffixes. He defends his point of view by saying that “the most concrete evidence that we are dealing here with two different affixes is the fact that the nominals of *N#able* and *V#able* are formed by different rules. The denominal adjectives always take the nominal ending *#ness* and never *+ity* (**fashionability*; *sizeableness*, **sizeability*), while the deverbal adjectives show no real preference (*acceptability*, *acceptableness*; *moveableness*, *moveability*) [...]. Slightly less palpable evidence comes from the fact that the two *#ables* have very distinct semantics. The deverbal one means approximately ‘capable of being *Xed* (where *X* is the base)’. The denominal one means ‘characterised by *X* (where *X* is the base)’. This difference shows up in cases in which a form *X#able* can be derived from homophonous noun/verb pairs”.

'edible' as 'can be eaten', 'intelligible' as 'can be understood' and 'visible' as 'can be seen' (Lyons, 1977/II: 533). Some of the deverbal adjectives are also frequently employed as substantives, especially in the plural, such as breakables, valuables, combustibles, etc (Jespersen, 1942: 403).

The denominal adjectives formed by this suffix do not satisfy the productive formula ($V + \text{-able} = A$) and, therefore, do not belong to the class of -able adjectives which are nominalized by means of the rule ($V_{tr} + \text{-able} + \text{-ity} = N2$). Many of these adjectives are morphologically and semantically idiosyncratic in relation to the forms from which they appear to be derived and the interpretive modality of possibility, necessity, or obligation associated with deverbal adjectives is irrelevant to the meanings of these adjectives (cf. Lyons, 1977/II: 533, 534). In other words, in the case of being added to nouns, -able in the derivative adjectives can denote a variety of meanings such as 'reasonable' (behaving with reason), 'knowledgeable' (showing or having broad knowledge), 'companionable' (fitted to be or behaves like a companion), 'sociable' (tending to have social relations), etc.¹ Following Lyons (*Ibid*: 534):

"since $N + \text{able} = A$ is certainly not a synchronically productive rule of modern English, there is little point in treating 'knowledgeable' [for example] as any thing other than a simple lexeme in the lexicon, despite the fact that it is obviously related semantically to 'knowledge'. The same holds for all the other adjectives with stems in -able which do not satisfy the formula $V_{tr} + \text{able} = A_z$ ".

Generally speaking, and by way of concluding this point, this type of denominal adjectives belongs to the general language and is rarely employed technically in special languages. When encountered in translation situations, these adjectives are always translated contextually by virtue of employing the technique of free translation.

¹ Marchand (1969: 231) argues that some denominal adjectives in -able do have a passive sense too such as marriageable, clubbable and marketable.

The suffix -ability and its variants -bility and -ibility, which consist of the suffix -able or one of its variants and the suffix -ity, form abstract substantives such as acceptability, compatibility and analysability. The suffix -ness is also appended to adjectives in -able to form abstract nouns that express 'a state or condition' (NSOED) such as acceptableness, moveableness and sizeableness. Adjectives in -able do also take negative prefixes to suit negative contexts. Generally speaking, negatives from adjectives in -able usually have the prefix un- with some exceptions, which have the prefix in- such as unacceptable, inadapttable, etc. Negatives from -ble or -ible adjectives normally have the prefix in- or one of its variants (ig-, il-, ir-) with the exception of adjectives already beginning with the prefix im- or in-, such as impressible and intelligible (Fowler, 1996: 2).

Following this cursory view of the linguistic nature of the suffix -able and its variants, a number of important points need to be highlighted. First, -able forms derivatives with the syntactic category of adjectives and some of these can behave as substantives. Second, being appended to both verbs and nouns, this suffix forms adjectives with different senses. Third, being added to transitive and intransitive verbs leads to another two types of diverse senses. Fourth, neither deverbal nor denominal adjectives formed by this suffix are semantically consistent and only through the context can the meanings of the majority of these adjectives be identified. Fifth, adjectives in -able have a syntactic potential for forming nouns by means of adding the suffixes -ity and -ness, but each can sometimes have a different semantic value. Finally, adjectives in -able can also be employed negatively through the prefixation of some negative prefixes. Negative forms usually represent separate but semantically related concepts. With these characteristics in mind let us see how Arabic normally expresses the adjectival concepts denoted by the English adjectives in -able and how modern Arab linguists, translators and terminologists manipulate these adjectives to render their relevant concepts into Arabic, especially in creating technical terms.

In Arabic, the adjectival concepts denoted in English by the employment of the suffix -able, are usually expressed by means of descriptive expressions formed

through lexical combination such as *qaabil li al-kasr* (breakable), *saalih li al-'isti'maal* (usable), *'urdah li al-talaf* (perishable), etc., which consist of an adjective (*qaabil*, *saalih*), or substantive (*'urdah*) etc., the preposition *li* (for, to, etc.) and the *masdar* (lit. verbal noun) in the definitive (*al-kasr*, *al-'isti'maal*, *al-talaf*). Sometimes these expressions are slightly modified to include the passive imperfect rather than the *masdar* such as *qaabil li'an yuksar* (lit. amenable to be broken), *saalih li'an yusta'mal* (lit. fit to be used), etc. The abstract nouns from these expressions are usually formed by means of employing *al-masdar al-sinaa'ii* pattern, which consists in the appending of the suffix *-iyyah* to the adjective, e.g. *qaabiliyyah*, *saalihiyyah*. In addition to the above mentioned long expressions, single morphological patterns are also used in expressing more or less the same concepts denoted in English by some -able adjectives. These patterns include the passive participle *MAF'UUL* as in *maqbuul* (can be or usually accepted), *masmuu'* (can be or usually heard) and *maqrui'* (can be or usually read), the active participle pattern *MUTAFa'IL* as in *mutaghayyir* (that which changes or can be changed) and the pattern *FA'UUL*, which has both an active and passive sense, but more usually with active as in *'akuul* (voracious) and *khajuul* (usually very shy).

In modern times and for the purpose of developing technical terminologies, some scholars prefer to get rid of the long descriptive expressions and restrict the creation of new technical terms to the employment of one or two morphological patterns by assigning the patterns to specific meanings. Most of the recorded suggestions in this respect are cited in al-Malaa'ikah (1981). The most important suggestions will be briefly explained and critically assessed in the light of the above mentioned characteristics of this suffix and the contrastive word-formation devices in Arabic.

In 1939, Anstans al-Karmilii, a philologist, suggested that the imperfect pattern, which is realised in different forms such as *YAF'UL*, *YAF'IL*, *YAF'AL*, *YATAFA'AL*, etc., can be employed to translate the English adjectives in -able such as 'soluble' for which he gave the equivalent *yadhuub*, which he regarded as capable of expressing the meaning of 'able to be or can be solved'. In other words, he

considers *yadhuub* as functionally equivalent to *qaabil li al-dhawabaan*. Denotatively, this is not a plausible suggestion because, first, this morphological pattern normally denotes 'an action' more than 'a quality', and even if it contextually suits some deverbal adjectives of active sense such as *yataghayyar*, semantically it does not always maintain the spontaneously conceptualized quality of 'being able to be done or acted upon'. Second, this pattern can neither be employed to translate deverbal adjectives of passive sense such as compressible, obtainable, justifiable and acceptable, nor denominal adjectives. Finally, syntactically, it often requires a relative pronoun to be used attributively or predicatively in a well-formed sentence because it is a verb. Another suggestion was put forward by Ali al-Jaarim, a grammarian and writer, which consists in the employment of the passive participle pattern *FA'IL*. This pattern can only be used to translate deverbal adjectives of the passive sense such as accessible (*maniil*) and breakable (*kasiir*). The problem with this form of the passive participle is that semantically it can be misleading because it gives more immediacy to the conceptualization of the resultant condition (being accessed or broken) than to the conceptualization of the permanent attribute of 'usually being able to be accessed or broken'. Finally, *FA'IL* represents only triliteral verbs and cannot accommodate quadriliteral verbs for example. Being dissatisfied with the previous suggestions,' Abdu al-Qadir al-Maghribii, a philologist, recommended the pattern *FA'UUL* in the passive sense as an alternative. He based his opinion on such attested instances as *al-maa' al-sharuub* (lit. water fit to be drunk), *al-lahm al-ta'uum* (lit. meat fit to be eaten) and *al-naaqah al-rahuul* (the she-camel that is usually or comfortably travelled upon). This opinion was also enthusiastically taken up later by al-Kwaakibii (1962b) and Ali (1987: 48, 49). Denotatively, *FA'UUL* has a dual function like *FA'IL* in some respects, as both usually have a passive sense when derived from transitive verbs such as *jariih* (wounded) and *rakuub* (ridden upon) respectively. When used actively, both patterns denote the active participle similar to that denoted by *FA'AAL*. Adjectives from these two patterns, but more especially *FA'UUL*, often indicate either a very high degree of the quality which their subject possesses, or an act that is carried out with frequency or violence by their subject. Because of this they are called *siyagh mubaalaghah* (lit. patterns of intensiveness) (Wright, 1859/I: 136-137). With this

semantic duality, *FA'IL* and *FA'UUL*-based translations can be amenable to misconceptualization unless contextually qualified. Following 'Aniis (1967), and based on his statistical research into the use of these two patterns, it is denotatively plausible to assign *FA'UUL* to the active participle and *FA'IL* to the passive participle¹ as Arabic has developed more *FA'UUL* words of the active sense than the passive sense. To describe a human or an animal as '*akuul*' is, therefore, more plausible than describing a certain type of food, fruit or meat as '*akuul*'. Finally, it is worth mentioning that *FA'UUL* represents only triliteral verbs but not others.

As a specialised institution, the Cairo academy officially adopted the passive imperfect pattern (*YUF'AL*, *YUFA'LAL*, *YUSTAF'AL*) to translate adjectives in -able such as *yuqbal* for 'acceptable', *yudhaab* for 'soluble', *yudghat* for 'compressible', *yu'add* for 'countable', etc., while the abstract nouns in -ity were to be translated through the employment of *al-masdar al-sinaa'ii* pattern *MAF'UULIYYAH* such as *maqbuuliyah* and *maduubiyyah*.² This suggestion is generally acceptable, but terminologically it is not plausible due to some reasons to be mentioned later. Other suggestions made by other scholars include the restricted employment of the patterns *AF'ALA* and its active participle *MUF'IL* and *ISTAF'ALA* and its active participle *MUSTAF'IL* to denote 'full development and consummation' such as '*athmar*/' *muthmir*, '*istahsada*/' *mustahsid*, etc.

It is clear from the above review that the intention was always to establish only one or two patterns for rendering the variety of meanings denoted by deverbal and denominal adjectives of active and passive sense while, as al-Malaa'ikah (1981: 179) also concludes, the descriptive expression, some forms of the active participle pattern and some forms of the passive participle pattern can selectively be used to render certain senses in certain contexts. The desire to render the above mentioned variety of meanings denoted by the English suffix -able through the restrictive employment of only one or two patterns is against the nature of Arabic, which differs structurally from English. If translation equivalents are not based on the natural

¹ This is also the stance taken by al-Malaa'ikah (1981: 178).

² See also al-Khatib (1986: 343) and al-Hamzaawii (1988: 463-465).

forms of expression in the TL, then much of the new expressions will be artificial and fuzzy.

Let us now consider how this suffix is employed in the technical vocabulary of linguistics, which of its senses are used most and how can they be terminologically rendered into Arabic. Morphologically, the linguistic technical terms containing the suffix -able or its variants are either single adjectival derivatives such as 'variable', 'accessible' and 'flexible' or compound syntagmas such as 'countable noun', 'deletable element', 'isolable pronoun', 'movable speech organ', 'singular invariable noun' and 'machine-readable phonemic alphabet'. Linguistic technical terms containing the suffix -able or one of its variants are of seven pattern types:

- | | |
|---|--|
| 1- Full word or root + -able: | acceptable, stable, flexible. |
| 2- Full word or root + suffix + -able: | codifiable, intensifiable. |
| 3- Full word + suffix + suffix + -able: | neutralizable. |
| 4- Prefix + root/word + -able: | subaudible, interchangeable. |
| 5- Full word/root + -able + suffix: | acceptability, translatability. |
| 6- Root + -able + suffix + suffix: | probabilistic. |
| 7- Prefix + full word or root + -able + suffix: | uncountability, incompatibility,
non-maintainability. |

Each of the above mentioned term-formation patterns has formal and semantic implications for terminological translation. Formal implications are those which determine the structure and length of the TL equivalents, while the semantic implications are those which determine how the technical senses denoted by these

syntagmas are transferred into the TL, and how they are conceptualized by the TL users.

In linguistics, the vast majority of the syntagmas formed by this suffix are deverbal and the majority of these deverbals are derived from transitive verbs; therefore, semantically, the majority are of the passive type. Those of pure active sense are very few such as 'stable'. Some syntagmas are dual in sense such as 'variable', 'flexible' and 'changeable' due to the fact that their underlying verbs are used both transitively and intransitively. Although many of the syntagmas can generally be used as substantives, it seems that only 'variable' is used terminologically as substantive in such terms as 'semantic variable', 'linguistic variable' and 'cognitive variable'. Formation of the abstract noun in -ity from deverbal adjectives in -able is very common in the terminology of linguistics. Syntagmas in -ity express a state or condition such as 'acceptability' (the state or condition of being accepted or being able to be accepted) and 'translatability' (the state or condition of being able to be translated). Adjectives and abstract nouns in the negative are formed by the negative prefixes un-, in- (or its variants) and non- such as 'unacceptable', 'untranslatable', 'immutable', 'inaudible' and 'non-maintainable'. In discussing the translation problems related to this suffix, we shall be concerned mainly with positive adjectival derivatives with reference, when necessary, to issues related to the formation of negatives and abstract substantives.

Generally speaking, four factors affect terminological translation. These are accuracy in meaning, consistency, semantic relations with other terms and concision. First priority is always given to accuracy in meaning. The semantic variation exhibited by this English suffix in forming adjectives, the contexts in which it is terminologically used and the lack of a single parallel word-formation device in Arabic necessitate that more than one morphological pattern or lexical device be utilised to reflect this variation in meaning and context. This implies that achieving designative accuracy will be at the expense of formal consistency and concision, as the following discussion will show.

Based upon the above critical review of the suggested options for translating the adjectives ending in the suffix -able, terminologically only four options show possible, but not definite applicability. First it should be reiterated that none of these options can alone be employed to translate all terms formed by -able. The possible four options are (a) the passive imperfect pattern, (b) the passive participle pattern, (c) the active participle pattern and (d) the descriptive expression. The passive imperfect pattern can be employed consistently to produce paradigmatically consistent equivalents in Arabic such as *yuqbal* for 'acceptable', *yuḥallal* for 'analysable', *yusarraḥ* for 'declinable', *yuḥayyad* for 'neutralizable' and so on. The negative form in English can also consistently be translated by means of employing the negative particle *laa* before the passive imperfect such as *laa yuqbal*, *laa yuḥallal*, *laa yusarraḥ* and *laa yuḥayyad* etc. Although this pattern is adopted and recommended by the Cairo academy, it is unlikely to be suitable for terminological employment due to the following reasons. First, syntactically it is not always freely employed in constructing sentences because it often requires a relative pronoun before it in a sentence structure. In translating the sentence 'This syntactically analysable sentence is meaningless', for example, the Arabic equivalent *tuḥallal* requires the relative pronoun *allatii* before it in order to have a syntactically well-formed sentence in Arabic: *haadhihi al-jumla allatii tuḥallal tarkiibiyyan la ma'naa lahaa*. Second, it is not directly amenable to further derivation, because to derive the abstract noun from *yuqbal*, for example, to represent the English abstract noun 'acceptability', we can only affix the suffix *-iyyah*, which forms the *maṣdar* *ṣinaa'ii*, to the passive participle *maqbuul*, but not *yuqbal*, to produce *maqbuuliyyah*. Third, this pattern cannot be employed to translate substantives such as 'variable'. Finally, it cannot be employed to translate the -able adjectives of active sense. Based upon the above mentioned considerations, we can conclude that this pattern is terminologically unsuitable for translating -able adjectives though it can be functionally suitable for translating non-technical terms.

Having ruled out the applicability of the passive imperfect pattern for terminological reasons, the following procedures are suggested in order of priority:

1- Employment of the passive participle pattern when the adjective denotes 'the quality of being a habitual subject to the action denoted by the underlying verb' such as:

a- MAF'UUL	acceptable utterance	<i>qawlah maqbuulah</i>
	audible friction	<i>iḥtikaak masmuu'</i>
	admissible consonant cluster	<i>taraakum saamitii</i>
		<i>maqbuul</i>
	comprehensible data	<i>ma'luumaat mafhuumah</i>
	countable noun	<i>'ism ma'duud</i>
	readable text	<i>nass maqruu'</i>
	reliable test	<i>ikhtibaar mawthuuq</i>
	permissible usage	<i>isti'maal masmuuh</i>
b- FA'IIL	accessible word	<i>kalimah maniilah</i>
c- MUF'AL	declinable word	<i>kalimah mu'rabah</i>
d- MUFA'AL	flexible verb	<i>fi'l muṣarraḥ</i>
e- MUFTA'AL	probable change	<i>taghayur muḥtamal</i>
f- MUTAFAL'AL	predictable utterance	<i>qawlah mutawaqqa'ah</i>

It should be pointed out that some of the above listed English adjectives can also contextually denote possibility, such as 'readable' (can be read), 'countable' (can be counted), 'comprehensible' (can be comprehended), 'accessible' (can be accessed); therefore, in this context, they should be translated by means of the descriptive expression. The abstract noun can always be derived from the above listed Arabic equivalents through the employment of *al-maṣdar al-sinaa'ii* pattern.

2- Employment of the active participle pattern when the adjective denotes *habitual reflexivity, willingness, intensiveness or reciprocity*. In Arabic, patterns of the active participle do not only indicate

“a temporary, transitory or accidental action or state of being, but also serve as adjectives or substantives, expressing a continuous action, a habitual state of being, or a permanent quality”. (Wright, 1859/I: 131-132)

The following are the suggested active participle patterns, which can be employed to render the -able adjectives denoting the above mentioned meanings:

a- **MUNFA‘IL** (expressing reflexivity):

isolable pronoun *damiir munfasil*

b- **MUTAFa‘IL** (expressing willingness to change)

declinable word *kalimah mutasarrifah*

mutable sound *sawt mutabaddil / mutahawwil*

movable stress *nabr mutaharrik*

c- **FA‘UUL** (expressing constancy and intensiveness)

stable tone *naghmah thabuut*

d- **MUFAA‘IL / MUTAFAA‘IL** (expressing reciprocity)

compatible words *kalimaat muwaa’imah / mutawaa’imah*

Abstract nouns from the above active participle forms can also be derived through the employment of *al-msdar al-sinaa’ii* pattern such as *munfasiliyyah* (the state or condition of being isolable), *mutasarrifiyyah* (the state or condition of being declinable), *thabuutiyyah* (the state or condition of being stable) and *mutawaa’imiyyah* (the state or condition of being compatible).

3- Employment of the descriptive expression when the English adjective expresses possibility such as:

codifiable language	<i>lughah qaabilah li al-tashfiir or al-tadwiin</i>
deletable element	<i>'unṣur qaabil li al-ḥadhḥf</i>
retrievable word	<i>kalimah qaabilah li al-tadhakkur</i>
translatable expression	<i>ta'biir qaabil li al-tarjamah</i>

or fitness such as

learnable skill	<i>mahaarah ṣaaliḥah li al-ta'allum</i>
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If translated otherwise, these terms will be misleading. In other words, if 'deletable' is translated as *mahdhuuf*, 'codifiable' as *mushaffarah* or *mudawwanah*, 'learnable' as *muta'allamah*, 'retrievable' as *mutadhakkarah* and 'translatable' as *mutarjam*, in Arabic these terms will denote the acted-upon objects not the quality of being able or worthy or amenable to be acted upon.

It should be pointed out that these procedures are not without exceptions. Terminologically, some terms can be more contextually accurate if they are translated functionally rather than intensionally, or literally. That is to say the translation is to be based on the communicative function of the SL term rather than on its literal meaning. One of the translation techniques that are usually applied to produce functional equivalence is 'modulation', by which it is meant

"a variation of the form of the message, obtained by a change in the point of view". (Vinay and Darbelnet, 1965: 36)

Accordingly, the term 'quantifiable noun' can be literally translated as *al-'ism al-maqiis*, but contextually it will be more appropriate if it is translated as *al-'ism ghayr al-ma'duud*, which is equivalent to the English term 'non-countable noun', which is a synonym of 'mass or quantifiable noun' (Hartmann and stork, 1972: 137).



Another example is the Arabic equivalent *milkiyyah* '*aradiyyah*' given by al-B'albaki (1990) to the English term 'alienable possession'¹, which is terminologically and contextually more appropriate than *milkiyyah ghayr iltisaaqiyyah* given by al-Khuulii (1982) because the former is formally more concise and communicatively more to the point.

In conclusion, the lack of a single morphological device in Arabic to render the senses expressed in English by the suffix -able is solved by the employment of one lexical and two morphological devices, which are realised in more than one form. Variation in form of the morphological devices is relatable to both the semantic variation of the English adjectives and the conjugational nature of the underlying verbs in Arabic. Variation in the lexical device is mainly due to the semantic variation exhibited by the translated adjectives.

3.2 -ization

According to the NSOED, this suffix is from or after French *-isation* and is employed in English to form nouns from verbs in *-ize*, or by analogy where no verbs exist, as metrization. Structurally, and according to the RHD, this suffix is "a combination of *-ize* and *-ation*". The forms *-ise* and *-isation* are variants of *-ize* and *-ization*. The suffix *-ize* is also from or after French *-iser* from late Latin *-izare*, from Greek *-izein* (NSOED). In English, transitive and intransitive verbs in *-ize* are derived from substantives, adjectives, proper names of persons and names of chemical substantives. Desubstantial verbs in *-ize* include: capitalize, computerize, crystalize, fictionize, itemize, lionize, ozonize, categorize, picturize, terrorize and victimize. Deadjectival verbs represent the strongest type, and all adjectives in *-al*, *-an*, (*-ian*), *-ar* and *-ic* are verbalized by means of *-ize*, such as colonialize, commercialize, formalize, legalize, americanize, anglicize, republicanize, urbanize, circularize, familiarize, catholicize, classicize and poeticize. Derivatives from proper names of persons include: bowdlerize, de-stalinize and galvanize. Finally, derivatives from

¹ In linguistics, 'alienable vs. inalienable possession' refers to a "semantic subcategory which expresses possession in reference to whether or not the possessed object is easily removed, transferable, temporary or permanent, or essential. It is realised differently in various languages" (Bussmann, 1996: 15).

names of chemical substances include: alkalize, carbonize, etherize, hydrogenize and oxidize (Marchand, 1969: 320).

Semantically, and according to the NSOED, -ize is employed to form syntagmas with at least six different senses as follows:

- 1- Forming transitive verbs with the sense '*make or treat in a specified way*', such as anatomize, characterize, ideolize and tantalize.
- 2- Forming intransitive verbs with the sense '*do in a specified way, follow a specified practice*', such as agonize, apologize, botanize, sympathize and theorize.
- 3- Forming transitive and intransitive verbs with the sense '*bring or come into some specified state*', such as authorize, fertilize, fossilize, jeopardize, moralize and temporize.
- 4- Forming transitive and intransitive verbs from ethnic adjectives with the sense '*make or become like the country, people, language, etc. in character, or naturalize as*', such as Americanize, Latinize and Russianize.
- 5- Forming transitive and intransitive verbs from personal names with the sense '*treat or act like or according to the method of*', such as bowdlerize, galvanize and mesmerize.
- 6- Forming transitive verbs from names of substances with the sense '*impregnate, treat, combine, affect, or influence with*', such as alkalize, carbonize and oxidize.

The suffix -ation is appended to verbs ending in -ize to form nouns denoting verbal action or an instance of it, or a resulting state or thing (NSOED). In addition to

having nouns of action in -ization, verbs in -ize have the usual derivative adjectives and substantives including participle adjectives in -ed, such as 'sensitized paper', participle adjectives in -ing, such as 'a philosophizing writer', verbal substantives in -ing, such as 'the Bowdlerizing of Shakespeare', and agent-nouns in -izer, such as 'colonizer and womanizer' (OED).

In linguistics, the technical terms in -ization denote different types of processes, results and features or characteristics that can be classified semantically as follows:

1- The process or result of bringing or the coming of a language or linguistic element to a specified state or condition:

actualization	the physical expression of an abstract linguistic sign or feature
realization	same as above
creolization	the process by which a pidgin language develops into a creole
fossilization	1- the process by which a linguistic element becomes antiquated, or the state of having become antiquated 2- in second or foreign language learning, the process in which incorrect linguistic features become a permanent part of the way a person speaks or writes a language
indigenization	the adaptation a language may undergo when it is used in a different cultural and social situation
nativization	same as above
internalization	the process of acquiring knowledge about the structure of a language, particularly in the context of child language acquisition

lexicalization	1- the historical process and result of semantic change, in which the original meaning of a lexeme can no longer be deduced from its individual elements 2- the process by which a lexeme has, or takes on, a form which it could not have if it had arisen by the application of productive rules
idiomatization	same as 'lexicalization' in sense (1)
neutralization	the process which takes place when two distinctive sounds (phonemes) in a language are no longer distinctive
pidginization	1- the process by which a pidgin develops 2- in second and foreign language learning, the development of a grammatically reduced form of a target language, which is usually a temporary stage in language learning
dialectalization	the process of linguistic separation of speech communities in which dialects become less like each other
institutionalization	the process by which a nonce formation or a semantic extension of an existing lexeme starts to be accepted by other speakers as a known lexical item

2- The process or result of forming a linguistic element in a specified way:

acronymization	the process or result of forming acronyms
adjectivization	the process or result of forming adjectives from non-adjectives
adverbialization	the process or result of forming adverbs from non-adverbs
cliticization	the process or result of adding proclitics and enclitics to words

nominalization	the process or result of forming nouns from some other parts of speech
relativization	the process or result of forming a relative-clause construction
thematization	the process or result of moving an element to the front of the sentence to act as theme
topicalization	same as above
substantivization	the process or result of forming substantives

3- The process or result of using a linguistic element in a specified way:

adjectivization	the process or result of using a word or phrase as an adjective
adverbialization	the process or result of using a word or phrase as an adverb
concretization	the process or result of using an abstract word as a concrete word
nominalization	the process or result of using a noun phrase instead of a verbal construction or subordinate clause
pronominalization	the process or result of using a pronoun instead of some other part of speech or syntactic structure
reflexivization	in transformational grammar, the process or result of introducing reflexive pronouns into a sentence according to a specific rule
substantivization	the process or result of using a word as a substantive

4- The process or result of converting or the conversion of a linguistic element from one type, state or condition to another:

adjectivization	the process or result of converting a non-adjective word into an adjective
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adverbialization	the process or result of converting another type of word into an adverb
consonantization	the process or result of changing a sound into a consonant
diphthongization	the process whereby a monophthong becomes a diphthong
grammaticalization	a process of linguistic change whereby an autonomous lexical unit gradually acquires the function of a dependent grammatical category
labialization	a diachronic process of sound change through which an originally unrounded sound is rounded in assimilation to a labial sound
lateralization	a phonological process in which a non-lateral consonant is converted into a lateral
monophthongization	a phonological process in which a diphthong is converted into a monophthong
nasalization	a phonological process in which some other segment is converted into a nasal stop
nominalization	the process or result of converting other words into nouns
passivization	the process or result of converting an active sentence or clause into a corresponding passive sentence or clause
pharyngealization	a phonological process in which a non-pharyngeal segment is converted into a pharyngeal segment
phonemicization	the process or result of the development of a phonological variant (allophone) into a phoneme
pronominalization	the conversion into a pronoun (by means of a substitution transformation) of some thing which, at some deeper level of grammatical representation, is not a pronoun
reflexivization	the process or result of making a verb, noun phrase, etc. reflexive

rhotacization	the conversion of another sound, especially the phoneme /s/ into the phoneme /r/
sonorization	the substitution of a voiceless consonant by a homorganic voiced consonant
spirantization	a phonological process in which a plosive is converted into a fricative
fricativization	same as above
substantivization	the process or result of converting a word into a substantive
verbalization	the process of converting a word into a verb
yodization	the change of a sound into /j/
phonologization	a phonological process in which an allophonic variation becomes phonemic
linearization	a phonological process in which a single segment in a particular environment develops into a sequence of two segments
morphologization	1- the fusion of independent elements into a single morphological form 2- the change of a phonological rule into a morphological regularity through the loss of an originally present phonetic motivational factor
segmentalization	same as linearization
feminization	the process or result of converting a non-feminine word into feminine
vocalization	a phonological process in which a consonant is converted into a vowel

5- The process of articulating a linguistic sound or the state or quality of being articulated in a specified way:

centralization	the process of articulating a sound or the quality of being articulated with the highest point of the tongue somewhat closer to the centre of the mouth
dentalization	the process of articulating a sound with the tip of the tongue against the upper front teeth, or the state of being articulated in this way
faucalization	the process of articulating a segment by means of lateral compression of that part of the pharynx just behind the mouth
glottalization	the process of articulating a sound involving a simultaneous glottal constriction, especially a glottal stop
labialization	the process of articulating a sound accompanied by lip movement, extending the oral cavity and producing a round aperture between rounded lips
nasalization	the process or result of articulating a segment with an accompanying lowering of the velum allowing air to pass out through the nose
laryngealization	the process or fact of a sound being produced in or affected by the larynx
pharyngealization	the process or result of articulating a sound involving a constriction of the pharynx
rhotacization	the process or result of articulating a vowel in a way affected by a following /r/ sound
sonorization	the process or result of articulating a sound involving the vibration of the vocal folds
sulcalization	the process by which the tongue takes a configuration in which the tip and the back are both raised but the front is lowered, yielding a concave outline as in the articulation of a dark ///

velarization	the process or result of articulating or supplementing the articulation of a sound, especially a consonant, by raising the tongue to or towards the soft palate
yodization	the process or result of articulating a sound with a prefixed semi-vowel /j/

6- The process or result of treating a language or linguistic elements in a specified way:

categorization	<p>1- in semantics, the process or result of grouping linguistic signs and the sections of human experience they represent into classes</p> <p>2- in grammar, the establishment of a set of classificatory units or properties used in the description of language, which have the same basic distribution, and which occur as a structural unit throughout the language</p>
contextualization	the process or result of placing or treating as part of a context; especially to study phonemes, words, etc. in context
formalization	the process or result of using formal languages of mathematics and formal logic to describe natural languages
generalization	<p>1- the process or result of explaining the observed linguistic data through the application of a rule or principle</p> <p>2- a learning process involving the formulation of a general rule or principle from the observation of particular examples</p>
idealization	the process of discounting certain aspects of the raw data of speech in the production of as generally an analysis as possible

phonemicization	the process or result of analysing, classifying or describing the sounds of a language in terms of phonemes
hierarchization	the process or result of organizing or classifying linguistic units in gradation of orders or a series of successively subordinate levels
hypostatization	the process or result of treating an abstract quality as if it were human
lemmatization	1- in lexicology, the process or result of reducing the inflectional form of a word to its base and the elimination of homography 2- in computational linguistics, the process or result of assigning each word form a uniform heading under which related textual elements are ordered

7- The process or result of using one language in place of another or imposing linguistic features in one language on a linguistic element from another language:

anglicization	1- the process or result of using English in place of another language 2- the process or result of imposing English grammatical or phonological features on a linguistic element from another language
arabization	1- the process or result of using Arabic in place of another language 2- the process or result of imposing Arabic grammatical or phonological features on a linguistic element from another language
naturalization	the process or result of modifying a loan word or phrase to make it conform to the phonological pattern of the borrowing language

romanization	the process or result of transliterating graphic signs of non-Latin systems into the letters of the Latin alphabet
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8- The process or result of representing a concept or linguistic element in a specified way:

capitalization	the process or result of using capitals in some languages to begin the first word of a sentence and for the first letter of a proper name
lexicalization	1- the process or result of expressing a grammatical or semantic category by a lexical item 2- the process or result of adopting words into the lexicon of a language to represent a specific concept
phonetization	the process or result of writing words or sounds phonetically
terminologization	the process or result of adopting a linguistic unit to represent a technical concept
vocalization	in Semitic languages, the process or result of representing the vowels by diacritics

The above semantic classification of the -ization terms shows that some are polysemous such as 'lexicalization', 'adjectivization', 'adverbialization', 'pronominalization' and 'verbalization'. Some other terms are synonymous such as 'lexicalization'/'idiomatization', 'actualization'/'realization', 'fricativization'/'spirantization', 'linearization'/'segmentalization' and 'thematization'/'topicalization'.

In addition to being used to denote the above concepts, some of the above terms are also employed morphologically to form semantically related terms through prefixation, such as

de-contextualization	the process or result of studying or treating a linguistic element in isolation from its context
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de-creolization	the process by which a creole becomes more like the standard language from which most of its vocabulary comes
de-dialectalization	the process whereby local and regional dialects become more like the standard language
de-labialization	a phonological process in which a segment loses its labial character
de-nasalization	a phonological process in which a segment loses its nasal character
de-vocalization	1- a phonological process in which a vowel or a glide is converted into a consonant 2- a phonological process in which a segment which is historically or underlyingly voiced loses its voicing
over-generalization	a process common in both first- and second-language learning, in which a learner extends the use of a grammatical rule of a linguistic item beyond its accepted uses, generally by making words or structures follow a more regular pattern
sub-categorization	in transformational grammar, the process of specifying lexical categories into syntactically motivated subclasses, which correspond to the compatibility between syntactic functions in the sentence
re-phonologization	a type of phonological change in which the relations among phonemes are changed but not the number of phonemes or their distribution

For the sake of maintaining morpho-semantic relationships, these semantically motivated syntagmas have to be taken into consideration when translating the base terms to which prefixes are appended.

In Arabic, the verbal action or an instance of it and the resulting state or thing is normally expressed by *al-masdar* pattern, which forms verbal nouns called '*asmaa' al-fi'l*'. These are

“abstract substantives, which express the action, passion, or state indicated by the corresponding verbs, without any reference to object, subject, or time” (Wright, 1859/I: 110).

Through the employment of denotatively different *masdar* patterns, the processes and resulting states, conditions and qualities such as those denoted by the English suffix -ization are normally expressed in Arabic in two ways:

1- Employment of *masdar* patterns to create single-word terms such as

TAF'IL	(<i>masdar</i> of the transitive FA''ALA, denoting intensity and causativity)
<i>al-tadwiin</i>	the process or result of bringing a language into the state of being codified
<i>al-ta'jiim</i>	the process or result of disambiguating a written text by providing it with diacritics
<i>al-tahqiq</i>	the process or result of editing a manuscript
<i>al-ta'riib</i>	the process or result of making a loan word comply with the Arabic morpho-phonological features
<i>al-tarkiib</i>	the process or result of constructing a linguistic element
<i>al-tafsiir</i>	the process or result of interpreting texts
<i>al-tadmiir</i>	the process or result of using a word instead of an implied one
<i>al-tasriif</i>	the process or result of changing the morphological structure of words
 TAFA''UL	 (<i>masdar</i> of the intransitive TAFA''ALA, denoting reflexivity and graduality)
<i>al-tarakkub</i>	the process or result of becoming compound or composite
<i>al-tafarru'</i>	the process or result of becoming subdivided

<i>al-ta'aqqud</i>	the process or result of becoming complex
<i>al-tahaqquq</i>	the process or result of becoming actual
'IF'AAL	(<i>masdar</i> of 'AF'ALA, denoting causativity)
<i>al-'i'jaam</i>	the process or result of disambiguating a written text by providing it with diacritics
<i>al-'ighnaan</i>	the process of making sounds nasal
<i>al-'idmaar</i>	1- in Arabic prosody, the process or result of pronouncing the second consonant in the metric measure <i>MUTAFAA'ILUN</i> with <i>sukuun</i> to become <i>MUTFAA'ILUN</i> 2- in Arabic grammar, the dropping of a pronoun when it is implicitly understood
FA'L	(<i>masdar</i> of FA'ALA, denoting transitivity)
<i>al-sawgh</i>	the process or result of forming linguistic elements
<i>al-naht</i>	the process or result of coining a word through blending
<i>al-fasl</i>	the process or result of disconnecting sentences or parts of sentences through punctuation
<i>al-wasl</i>	the process or result of connecting sentences or parts of sentences through punctuation
<i>al-hadhf</i>	the process or result of omitting a linguistic element for a semantic, grammatical or rhetoric purpose
'IFTI'AAL	(<i>masdar</i> of 'IFTA'ALA, denoting the obtainment or acquirement of some thing for some purpose)
<i>al-'ishtiqaq</i>	the process or result of deriving a word from another
<i>al-'iqтираاد</i>	the process or result of borrowing a linguistic element from another language
<i>al-'iqtibaas</i>	the process or result of quoting a spoken or written statement
FI'AAL	(<i>masdar</i> of FA'ALA, denoting transitivity)
<i>al-binaa'</i>	the process or result of structuring a word or a sentence

al-qiyaas the process or result of analogizing linguistic elements

FI'AALAH (*maṣḍar* of *FA'ALA*, denoting transitivity)

al-kitaabah the process or result of writing

al-siyaaghah the process or result of forming linguistic elements

FU'LAH (*maṣḍar* of *FA'ILA* or *FA'ALA*, denoting a resulting quality or state)

al-ghunnah the resulting nasal sound

- 2- Employment of *maṣḍar* patterns to form compound terms in which the compound head is formed by the *maṣḍar* pattern and is either qualified genitively or attributively, such as

tadwiin al-lughah
or *al-tadwiin al-lughawii* the process or result of codifying the language

'ishtiqaq al-'asmaa'
or *al-'ishtiqaq al-'ismii* the process or result of deriving nouns

tasriif al-'af'aal the process or result of conjugating verbs

ta'riib al-'alfaaz
or *al-ta'riib al-lafzii* the process or result of arabizing words

'ighnaan al-harf the process of pronouncing letters with *ghunnah* (nasal sound)

'i'jaam al-nusuus the process of disambiguating texts by providing them with diacritics

naht al-kalimaat the process of coining words through blending

Following the review of the origin and technical employment in linguistics of the suffix -ization, and following the exploration of the ways in which Arabic expresses the concepts of 'process and resulting state, thing or quality', let us discuss the translation equivalents given by four Arab terminographers to the above semantically classified -ization syntagmas.

- 1- The translation equivalents for the set of terms denoting 'the process or result of bringing or the coming of a language or linguistic element to a specified state or condition':

Table no. (3.2.1)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B'albakii 1990	Mubaarak 1995
Actualization	<i>tahqiiq</i>	<i>ta'diyat al-harf + ikhraaj al-harf</i>	<i>tahqiiq</i>	<i>tahqiiq</i>
Realization	<i>tahqiiq</i>	<i>tahsiil al-lafz + tahsiil al-ma'naa</i>	<i>tahqiiq</i>	<i>tahqiiq</i>
Creolization	<i>tahjiin al-lughah</i>	-	<i>imtizaaj</i>	<i>tahjiin al-lughah + tawallud al-lughah</i>
Fossilization	-	-	<i>tahajjur</i>	-
Indigenization	-	-	<i>ta'hiil</i>	-
Internalization	-	-	<i>tamaththul</i>	-
Lexicalization	<i>ta'biir mufradaatii</i>	<i>talghiyah</i>	<i>ta'jiim</i>	<i>ta'biir mufradaatii</i>
Idiomatization	-	-	-	-
Neutralization	<i>tahyiid</i>	<i>'ilghaa'</i>	<i>tahyiid</i>	<i>tahyiid</i>
Pidginization	-	-	<i>1-ikhtilaat 2-iqtisaar</i>	-
Standardization	-	<i>tawhiid lughawii</i>	<i>taqyiis</i>	-
Dialectalization	<i>tafarru' lahajii</i>	<i>tasha''ub al-lughah</i>	<i>tafarru' lahajii</i>	<i>tasha''ub 'ilaa lahajaat</i>

Nativization	-	-	<i>ta'hiil</i>	-
Institutional-ization	-	-	-	-

The above table shows that most of the terms of this set are not included by al-Khuulii (1982), ALECSO (1989) and Mubaarak (1995). Al-B'albakii (1990) includes all terms but 'idiomatization' and 'institutionalization'. It is also clear from the above translation equivalents that the four Arab terminographers employ the *maṣḍar* pattern in translating the suffix -ization, but they differ in respect of the type of pattern used and in respect of producing one-word or more-than-one-word equivalents. This is in addition to their differences in achieving denotative accuracy.

In translating 'actualization' and 'realization', al-Khuulii (1982), al-B'albakii (1990) and Mubaarak (1995) use *tahqiq* in which -ization is rendered by *TAF'IIL*. This translation is denotatively accurate in the sense of 'the process or result of making a linguistic element actual', but it is not accurate in the sense of 'the process or result of a linguistic element becoming actual'. In the first sense, the linguistic element is acted upon by an agent to produce the state of actualization or realization, but in the second sense, the linguistic element is the reflexive agent that manifests the state or condition of actualization or realization in itself. This latter sense of -ization can be rendered into Arabic by another pattern, namely *TAF'UL*, which denotes reflexivity and effectiveness, to produce *tahaqquq*. Although 'actualization' and 'realization' are employed synonymously in this context in linguistics, each is given two different translations in ALECSO (1989). 'Actualization' is translated as *ta'diyat al-ḥarf* and *ikhraaj al-ḥarf* both of which are denotatively inaccurate because, first, they indirectly denote 'the process of performing an act of pronouncing a letter or articulating a sound', but not 'the process or result of articulating it' directly. Second, the reflexive sense of 'actualization' in which -ization denotes 'the process or result of coming to a specified state', which is here 'the state of becoming actual', is not represented in the above two translations of 'actualization'. Third, 'actualization' is not only related to phonological units, but other linguistic units and features as well, as the following definition tells:

“the actual [or physical] expression of a phonological, grammatical or semantic feature or unit, e.g. a ‘phoneme’ by a speech sound, ‘modality’ by auxiliary verbs, ‘gender’ by articles or inflexions, ‘subject’ by a noun phrase, ‘lexeme’ by a series of phonemes, etc.” (Hartmann and Stork, 1972: 192)

‘Realization’ is translated as *tahsiil al-lafz* and *tahsiil al-ma‘naa* both of which are inaccurate because in Arabic none of them denotes the concept of ‘realization’ or ‘actualization’ as defined above despite the fact that the compound head *tahsiil* in both translations is formed by *TAF‘IIL*. It is worth emphasising here that denotative accuracy in translating the -ization derivatives does not only depend on the selection of the denotatively accurate *masdar* pattern in Arabic, but also on the selection of the denotatively related lexical morpheme. It is the combination of both that reproduces the target concept through contextual conceptualization. Thus the combination of the pattern *TAF‘IIL* and the lexical morpheme (*h-q-q*) produces *tahqiq*, and the combination of the pattern *TAF‘UL* and the lexical morpheme (*h-q-q*) produces *tahquq*. Another defect exhibited by the above two pairs of translation equivalents given by ALECSO (1989) is that they are formally inconcise as each is composed of two words when one-word equivalent is possible, as has already been shown.

‘Creolization’ is translated as *tahjiin al-lughah* by al-Khuulii (1982) and Mubaarak (1995). This translation is inaccurate in terms of employing the *masdar* pattern *TAF‘IIL* in forming the compound head *tahjiin*, which implies that the process of creolization is consciously carried out by an agent through the underlying transitive verb *FA‘ALA*. In English, ‘creolization’ is delimited as

“the process by which a pidgin language develops into a creole” (NSOED)

or

“ the process by which a pidgin language becomes a creole”. (Richards et al, 1992: 91)

Based on these two definitions, the process in ‘creolization’ is that of a language coming to a specific state through gradual development. In Arabic, the process of coming to a specified state is expressed by the *masdar* pattern *TAF‘UL*, which denotes reflexivity and graduality. Another problem related to the above translation

of ‘creolization’ is the employment of the lexical morpheme (*h-j-n*) from which *hajjana* and *hajiin* are derived. Both al-Khuulii (1982) and Mubaarak (1995) who translate ‘creolization’ as *tahjiin al-lughah* also translate ‘pidgin’ as *lughah hajiin* and ‘creole’ as *lughah hajiin* and *lughah mukhtaliṭah*. Logically, ‘creole’ has to be given a different translation from that of ‘pidgin’ because a pidgin is

“a language which develops as a contact language when groups of people who speak different languages try to communicate with one another on a regular basis. [...] A pidgin usually has a limited vocabulary and a reduced grammatical structure which may expand when a pidgin is used over a long period and for many purposes” (Richards et al, 1992: 277),

while a creole is

“a former pidgin language that has developed into the sole or native language of a community” (NSOED) “Usually, the sentence structure and vocabulary range of a creole are far more complex than those of a pidgin language” (Richards et al, 1992: 91).

It also follows that the translation of ‘creolization’ and ‘pidginization’ is lexically and semantically governed by the translation of ‘creole’ and ‘pidgin’. Mubaarak (1995) translates ‘creolization’ as *tawallud al-lughah* and ‘creole’ as *lughah muwalladah*. The latter is apparently based on the Arabic term *muwallad*, which means (1) the recent of every thing, (2) the half-breed, half-blood or half-caste and (3) a non-Arab born and brought up among Arabs (cf. ‘Aniis et al, 1987: *muwallad*). *Lughah muwalladh* is denotatively adequate because the emerging creole language is normally the final development of a pidgin language, which originally develops from different languages, in which case ‘creole’ resembles *muwallad* in some respects. Even in English, etymologically, and according to the OED, the word ‘creole’ comes from French *creole* and Spanish *criollo* meaning ‘native to the locality or country’, and is believed to be a colonial corruption of *criadillo*, which is the diminutive of *criado* meaning ‘bread, brought up, reared, domestic’. The word ‘creole’ was applied by South American ‘negros’ to their own children born in America as distinguished from ‘negros’ freshly imported from Africa. Others also applied the word to Spaniards born in the West Indies. Based on the OED, ‘creole’ was originally used

to mean 'a person born and naturalized in the West Indies and other parts of America and Mauritius, but of European or African 'Negro' race', but now it is usually used to mean 'a descendent of European settlers born and naturalized in those colonies or regions, and more or less modified in type by the climate and surroundings'. In linguistics, the word is now technically used to mean 'a creolized language'. Based on the above etymological background and actual use in English of the term 'creole', the semantic extension of *muwalladah* to describe the type of language denoted in English by 'creole' is legitimate. However, the translation equivalent *tawallud al-lughah* given by Mubaarak (1995) to 'creolization' can be misleading despite the employment of the denotatively adequate *maṣḍar* pattern of *TAFa''UL*, because in Arabic it refers to the process of emerging or developing of any language, but not necessarily the creole language. This translation seems to be aimed at maintaining the morphological and semantic relationships holding between 'creole' and 'creolization' through the use of the Arabic terms *muwalladah* and *tawallud*. Although this is normally the recommended practice in coining translation equivalents for morphologically and semantically related terms, the problem here is that the sense of 'developing out of originally different things' or 'developing in an originally non-native place', expressed by 'creole', can be understood from *muwalladah* in Arabic but not from *tawallud*, which is not lexicalized with this meaning. In other words, *lughah muwalladah* can be conceived of as 'a language that has developed out of different languages' or 'a language developed in a place where it did not originally belong to', but *tawallud al-lughah* is not necessarily conceived of as the development or emergence of creole languages only, but of any type of language. To make use of the semantic closeness of *muwalladah*, 'creolization' can be translated as *taṭawwur al-lughah al-muwalladh*, *takawwun al-lughah al-muwalladh* or *tabalwur al-lughah al-muwalladh*. These translations are semantically adequate but formally inconcise.

Al-B'albakii (1990) translates 'creole' as *lughah maziij* and 'creolization' as *imtizaaj*. *Lughah maziij* highlights the sense of 'being made up of different elements', which is one of the semantic components of 'creole'; it is therefore, also denotatively adequate. *Imtizaaj*, on the other hand, is denotatively loose because (1)

it is not qualified and (2) it does not mean ‘the development or emergence of a mixed language’, but ‘the process of one or more things mixing with one or more other things’. In Arabic, the employment of the lexical morpheme (*m-z-j*) to refer to the ‘process of developing into a specified state’ can be realized through the derivation of *tamazzuġ* from *mazzaja* through the employment of *TAFa‘‘UL*, which denotes ‘intensity and the gradual development from one state or condition to another’. This sense of *tamazzuġ* is analogically developed from semantically established phrases such as *mazzaja al-sunbul*, which means *intaqala min khudrah ‘ilaa sufrah* (lit. the spike developed from being green to being yellow) (cf. ‘Aniis et al, 1987: *mazzaja*). The problem with *tamazzuġ* is that although the sense of ‘developing from one state or condition to another’ is achieved it can still misleadingly mean ‘the development of an originally established language, such as English, from one state to another’, as is the case in the development of English from Old English to Middle English and then to Modern English. This is so because *tamazzuġ*, whether qualified through *nisbah* (lit. relation) as in *al-tamazzuġ al-lughawii*, or genitively as in *tamazzuġ al-lughah*, does not necessarily only mean ‘the development from a pidgin language into a creole language’, but ‘the development of any language from one state to another’.

‘Pidginization’ is included by al-B‘albaki (1990) only who identifies the two senses of the term in linguistics. For the sociolinguistic sense of “the process by which a pidgin develops” (Richards et al, 1992: 277), he uses *ikhtilaat*, which is apparently intended to reflect the morphological and semantic relationships holding between ‘pidginization’ and ‘pidgin’, as he renders the latter as *lughah khaliit*. *Ikhtilaat* is also semantically loose, first, because the underlying *maṣḍar* pattern *IFTI‘AAL*, as is the case in *imtizaaj* above, does not denote ‘the process or result of coming or developing into a specified state’, but ‘the process of acting reciprocally or reflexively’. Second, it does not specify the thing involved in the process. If *lughah khaliit* is accepted as a translation equivalent for ‘pidgin’, then ‘pidginization’ can be translated through the employment of the *maṣḍar* pattern *TAFa‘‘UL* in a genitive structure to produce *taṭawwur al-lughah al-khaliit* or *takawwun al-lughah al-khaliit*, which are both denotatively precise but formally lengthy translation equivalents.

Another way of translating 'pidginization in which denotative precision and formal concision are maintained is to translate 'pidgin' as *lughah hajiin*, from *hajjana* meaning 'to produce out of different kinds or origins' ('Aniis et al, 1987) based on which 'pidginization' can be translated as *al-tahajjun al-lughawii*. *Tahajjun* is formed by *TAF*'*UL*, which denotes both reflexivity and graduality, two of the essential semantic components that make up the concept of 'pidginization' as delimited in sociolinguistics. Thus, by translating 'pidgin' as *lughah hajiin*, 'creole' as *lughah muwalladah*, 'pidginization' as *al-tahajjun al-lughawii* and 'creolization as *tatawwur* or *tabalwur al-lughah al-muwalladah*, the underlying concepts are semantically distinguished and the morphological and semantic relationships holding between the pairs of terms are maintained in Arabic.

'Pidginization' in the sense of 'the development of a grammatically reduced form of a target language in the process of second and foreign language learning' is translated by al-B'albakii (1990) as *iqtiṣaar*, in which -ization is rendered as *IFTI'*AAL. This translation is denotatively inadequate because (1) the underlying pattern does not denote 'the process of bringing some thing into a specified state', (2) it is not qualified, i.e., it does not specify the acted upon thing, and (3) it does not highlight one of the most essential semantic components of this concept, namely 'the simplification of the grammar of the learned language', which can be understood from the following definition

“(in second and foreign language learning) [pidginization is] the development of a grammatically reduced form of a target language. This is usually a temporary stage in language learning” (Richards et al, 1992: 278)

Based on the above discussion, 'pidginization' in the above sense can be rendered into Arabic as *al-tabsiiṭ al-lughawii*, in which the compound head is formed by *TAF'*ILL, which denotes causativity and intensity. Through the qualification of *al-tabsiiṭ* by *al-lughawii*, this translation equivalent specifies the acted upon thing, which is the target language.

The translation equivalent *tahajjur* given by al-B‘albakii (1990) to ‘fossilization’ is denotatively precise and formally concise. It is precise because the underlying pattern *TAFa‘‘UL* denotes ‘the process or result of coming into a specific state in an intensive and gradual manner’, which reflects the semantic value of -ization in the process of ‘fossilization’.

The synonymous terms ‘indigenization’ and ‘nativization’ are both translated by al-B‘albakii (1990) as *ta’hiil*, which is formally concise but word-formationally and semantically loose in four ways: (1) the underlying verb *‘ahhala* does not mean ‘adapt or subject to indigenous or native influence or dominance’; (2) the adjective *‘ahlii* (indigenous) has no corresponding verb that means ‘make *‘ahlii*, like the verb *indigenize*, from which *ta’hiil* can be derived; (3) the process denoted by -ization in ‘indigenization’ is not that of causativity in the sense of ‘making the language as’, but of reflexivity in the sense of ‘the coming of a language into a specified state’, which can be understood from the following definition and example:

“the adaptation a language may undergo when it is used in a different cultural and social situation. English in India, for example, is said to have undergone nativization [or indigenization] because changes have occurred in aspects of its phonology, vocabulary, grammar, etc.” (Richards et al, 1992: 241);

and (4) *ta’hiil* can lead to misconceptualization as the same term is already lexicalized in Arabic with other meanings such as ‘qualifying some one for having or doing some thing’ and ‘making some one get married’. Based on the above discussion, the concept of ‘indigenization’, or ‘nativization’, can be represented in Arabic through the employment of the lexical morpheme (*w-t-n*) to produce *tawattun*, which is formed by the reflexive *masdar* pattern *TAFa‘‘UL* from the verb *tawattana* meaning (1) ‘to adjust or adapt to’ and (2) ‘to become *waṭanii* (native or indigenous)’.

Tamaththul given by al-B‘albakii (1990) for ‘internalization’ is denotatively inaccurate because it means ‘the processes of (1) ‘conceptualizing the example of’, (2) ‘appearing in person before’ and (3) ‘taking a particular shape’, but not ‘acquiring or absorbing as knowledge’, which is the technical sense assigned to

‘internalization’ in generative linguistics, as can be understood from the following definition:

“the acquiring of knowledge about the structure of a language, primarily in the context of child language acquisition”. (Crystal, 1992: 191)

This concept can be represented in Arabic by one of the two terms of *tahsiil* and *tasharrub*. The first is formed by the *masdar* pattern *TAF‘IIL* and means ‘the process or result of bringing into the state of being acquired or obtained, and the second is formed by *TAF‘UL* and means the ‘process of bringing into the state of being taken in or absorbed’.

Although ‘lexicalization’ is included by the four Arab terminographers, none of them identifies it in the sense of ‘the process or result of a linguistic element coming into a specified state’.

In translating ‘neutralization’, ALECSO (1989) uses ‘*ilghaa*’, while the other three terminographers use *tahyiid*. The term ‘*ilghaa*’ can only be denotatively adequate in the causative sense of ‘the process of bringing a linguistic element into a specified state’ if it is qualified genitively such as ‘*ilghaa*’ *al-tabaayun* or ‘*ilghaa*’ *al-taghaayur* (lit. the cancellation of contrast). But it will not be denotatively adequate in representing the reflexive sense of ‘the process of coming to a specified state’ for which ‘*iltighaa*’ *al-tabaayun* or ‘*iltighaa*’ *al-taghaayur* is more denotatively accurate. This is because -ization in this context is rendered by the reflexive pattern *INFI‘AAL* underlying ‘*iltighaa*’. The other translation equivalent *tahyiid* is denotatively adequate in the causative sense but not in the reflexive sense. To render -ization in the reflexive sense of ‘the process of coming to a specified state’, the pattern *TAF‘UL*, which denotes reflexivity, has to be employed to render ‘neutralization’ as *tahayyud*.

The two translation equivalents *tawhiid lughawii* (cf. ALECSO, 1989) and *taqyiis* (cf. al-B‘albaki, 1990) given to ‘standardization’ represent only the causative sense of the term, namely:

“the process of making some aspect of language usage conform to a standard variety” (Richards et al, 1992: 350).

In this sense, -ization denotes ‘the process or result of *bringing* a language to a specified state’ for which the pattern *TAF‘IIL* is employed. The other sense of ‘standardization’, which is reflexive, is

“the natural development of a standard language” (Crystal, 1997: 360),

in which -ization denotes ‘the process of a language *coming* to a specified state’. In Arabic, this sense can be represented through the employment of the pattern *TAFa‘‘UL*, which denotes reflexivity and graduality, to produce *tawahhud* and similar terms.

Finally, in translating ‘dialectalization’, the four Arab terminographers employ the pattern *TAFa‘‘UL* in rendering -ization, which here denotes ‘the process of coming to a specified state’, and employ the two semantically related lexical morphemes (*f-r-*) and (*sh-‘-b*), hence denotatively the four suggested translations are adequate. Formally, only three of them are plausible from the terminological point of view, namely: *tafarru‘ lahajii* (cf. al-Khuulii, 1982 and al-B‘albakii, 1990) and *tasha‘‘ub al-lughah* (cf. ALECSO, 1989). The other translation, *tasha‘‘ub ‘ilaa lahajaat*, given by Mubaarak (1995), is inconcise because it is a three-word paraphrasal expression containing a prepositional phrase.

2. The translation equivalents for the set of terms denoting ‘the process or result of forming a linguistic element in a specified way’:

Table no.(3.2.2)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Acronymization	-	-	-	-

Adjectivization	<i>al-tahwiil 'ilaa na't</i>	-	<i>tan'it'</i>	<i>al-tahwiil min al-'idaafah 'ilaa al-wasfiyyah</i>
Adverbialization	<i>al-tahwiil 'ilaa darf</i>	<i>tahwiil 'ilaa qariinah faqliyyah</i>	<i>tadriif</i>	-
Cliticization	-	-	<i>'iykaa'</i>	-
Nominalization	<i>tahwiil 'ilaa 'ism</i>	<i>tahwiil 'ilaa 'ism</i>	<i>tamhiid 'ismii</i>	<i>al-tahawwul 'ilaa al-'ismiyyah</i>
Relativization	-	<i>al-rabt bi al-mawsuul</i>	<i>wasl</i>	-
Thematization	<i>ja'l al-kalimah mawduu' al-jumlah</i>	-	<i>taqdiim mawduu'ii</i>	<i>tamawdu'</i>
Topicalization	-	<i>al-tahdiith</i>	<i>taqdiim mawduu'ii</i>	-
Substantivization	-	-	<i>tamhiid 'ismii</i>	-

A cursory look at the above translation equivalents reveals that some terms, though included, are not identified in the sense of 'the process or result of forming a linguistic element in a specified way', either by all four terminographers, such as 'adjectivization' and 'adverbialization', or by some of them, such as 'nominalization'. Other terms are identified in the above sense but are given inaccurate translation equivalents such as 'nominalization' and 'substantivization', which are rendered by al-B'albakii (1990) as *tamhiid 'ismii*, in which -ization is translated as *tamhiid*. This word seems to be derived from *mahd*, which means 'the pure thing' ('Aniis et al, 1987), hence *tamhiid 'ismii* would mean 'the process or result of making nouns or nominals pure', which is semantically far from

"the process or result of forming a noun from some other part of speech
(Hartmann and Stork, 1972: 152)

or the

"derivation of nouns from another word class" (Bussmann, 1996: 327).

¹ Based on the explanation given by the terminographer under the entry of 'adjectivization, this translation equivalent is intended to mean 'the use of a word or phrase as an adjective', but not 'the formation of adjectives'.

Based on the above two definitions, -ization in 'nominalization' and 'substantivization' should be translated as *ṣawgh* (forming) or *ishtiqaaq* (deriving) in order to form denotatively precise compounds such as (1) *ṣawgh al-'ism /al-'asmaa'* (2) *al-ṣawgh al-'ismii* (the process or result of forming nouns), (3) *ishtiqaaq al-'ism/ al-'asmaa'* or (4) *al-ishtiqaaq al-'ismii* (the process or result of deriving nouns).

Some of the above terms can be rendered into Arabic through extensional translation, in which the *maṣdar* pattern *TAF'IIL* is employed to produce one-word translation equivalents such as *tan'ii* for 'adjectivization' and *tazriif* for 'adverbialization'. This is based on the functional meaning of *TAF'IIL*, which denotes 'the process or result of making or doing'. Therefore, *tan'ii* is the process of making or forming *na't* (adjective) and *tazriif* is the process of making or forming *zarf* (adverb).

The two translation equivalents of *al-rabt bi al-mawṣuul* (cf. ALECSO, 1989) and *wasl* (cf. al-B'albakii, 1990) given to 'relativization' are both inaccurate because none of them can denote

"the process of forming a relative-clause construction". (Crystal, 1997: 329)

In the first translation, -ization is rendered as a full word, *al-rabt*, while in the second it is rendered by the *maṣdar* pattern *FA'L*. Based on the above definition of 'relativization', -ization in this term should be translated as *ṣawgh* (formed by *FA'L*) or *binaa'* (formed by *FI'AAL*) to form contextually denotative compounds such as *ṣawgh al-mawṣuul* or *binaa' al-mawṣuul*. The term *al-mawṣuul* in both translations stands for *'ibaarat al-mawṣuul*.

The translation equivalents *tamawdu'*, given by Mubaarak (1995) for 'thematization', and *al-tahdiith*, given by ALECSO (1989) for 'topicalization', are also denotatively inaccurate and misleading. *Tamawdu'* is inaccurate because -ization here is translated as 'the process of becoming' rather than 'the process of

making'. In other words, in the first sense expressed by *tamawdu*' the linguistic element becomes theme, while in the second sense the linguistic element is made theme, which is the intended technical meaning in linguistics as can be understood from the following definition:

"the process of moving an element to the front of the sentence to act as theme". (Crystal, 1992: 389)

Tahdiith is also inaccurate because in Arabic it means (1) 'the process of telling or informing' and (2) 'the process of making something *hadiith* (modern or new)', but not 'the process of making something the talked about object', as explained by ALECSO (1989) under the entry of 'topicalization': "*ja'lu al-shay'i muhaddathun 'anhu*". Contemplating the way *tamawdu*' and *tahdiith* are formed in Arabic singles out the fact that their inaccuracy is caused by the terminographers' intention to coin concise translation equivalents through derivation to represent a semantically complex concept. In other words, both terminographers adopt the technique of extensional translation, through the employment of the two *masdar* patterns of *TAF'A'UL* and *TAF'IIL* respectively, when intensional translation through compounding, or lexical combination is more appropriate. This follows from the fact that when paraphrased, the two synonymously used terms 'thematization' and 'topicalization' would mean 'fronting as theme or topic'; therefore, in Arabic, two full lexical items are needed: one to represent 'fronting' and the other to represent 'as theme or topic'. In fact, this is the technique of intensional translation adopted by al-B'albakii (1990) to produce *taqdiim mawduu'ii* for both English terms. Thus, through *nisbah* compounding, the three semantic components of (1) front, (2) the process of making (expressed by -ization) and (3) theme, which make up the above concept, are equivalently rendered into Arabic through the employment of (1) the lexical morpheme (*q-d-m*) (related to front), (2) the pattern *TAF'IIL* (to express the process of making) and (3) *mawduu'ii* (to represent theme or topic).

Finally, -ization in 'cliticization' is rendered by al-B'albakii (1990) through the employment of the pattern *'IF'AAL* to form *'iykaa*' to represent 'the process or

result of attaching clitics', thus producing an extensionally equivalent term based on the metaphorical translation of 'clitic' as *muttaki*'.

- 3- The translation equivalents for the set of terms denoting 'the process or result of using a linguistic element in a specified way':

Table no. (3.2.3)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B'albakii 1990	Mubaarak 1995
Adjectivization	<i>al-tahwiil 'ilaa na't</i>	-	<i>tan'iit</i>	<i>al-tahwiil min al-'idaafah 'ilaa al-wasfiyyah</i>
Adverbialization	<i>al-tahwiil 'ilaa <u>darf</u></i>	<i>tahwiil 'ilaa qariinah fa_dliyyah</i>	<i>tadriif</i>	-
Concretization	-	-	<i>ta'yiin</i>	-
Nominalization	<i>tahwiil 'ilaa 'ism</i>	<i>tahwiil 'ilaa 'ism</i>	<i>tamhiid 'ismii</i>	<i>al-tahwwul 'ilaa al-'ismiyyah</i>
Pronominal-ization	<i>tahwiil al-'ism 'ilaa <u>damiir</u></i>	<i>tadmiir</i>	<i>tadmiir</i>	<i>tahwiil 'ilaa al-<u>damiir</u></i>
Reflexivization	-	-	<i>ta_twii'</i>	<i>in'ikaas</i>
Substantiv-ization	-	-	<i>tamhiid 'ismii</i>	-

The above translation equivalents reveal that some of the terms in this set are not identified in the above sense either by the four terminographers, such as 'nominalization', or by some of them, such as 'adjectivization' (cf. Mubaarak, 1995), 'substantivization' (cf. al-B'albakii, 1990), 'adverbialization' (cf. ALECSO, 1989), 'pronominalization' (cf. al-Khuulii, 1982, ALECSO, 1989 and Mubaarak, 1995) and 'reflexivization' (cf. Mubaarak, 1995). Some of these terms are identified in the above sense, but they are given inaccurate translations such as 'adjectivization' and 'adverbialization', which are rendered by al-Khuulii (1982) as *al-tahwiil 'ilaa na't* and *al-tahwiil 'ilaa zarf* respectively. In both translations, -ization is rendered as *al-tahwiil 'ilaa* despite the fact that under the entry of each of these two terms the terminographer clearly points out the sense of 'the process of

using a linguistic element in a specified way', through the inclusion of the following statements: "*istikhdaam kalimah laysat na't ka na't*" (lit. the use as an adjective of an originally non-adjective word) and "*istikhdaam kalimah laysat zarf ka zarf*" (lit. the use as an adverb of an originally non-adverb word). It is clear here that the two senses of (1) 'the process of using in a specified way' and (2) 'the process of converting in a specified way', denoted by -ization in the above two English terms, are confused with each other. In this set of terms -ization denotes sense (2), which is clear from the above definitions of the terms in this set. In Arabic, when -ization means 'use or employ as', the related concept can be rendered by a *nisbah* compound in which the term *tawziif* is qualified by an adjectival term representing the base-form to which -ization is appended, such as *al-tawziif al-na'tii* for 'adjectivization' and *al-tawziif al-zarfii* of 'adverbialization'. When -ization means just 'using or employing', the related concept can be rendered into Arabic by using the term *isti'maal* or *istikhdaam* in genitive compounds such as *isti'maal* or *istikhdaam al-damiir* for 'pronominalization' and *isti'maal* or *istikhdaam al-'ism* for 'nominalization'. The extensional translations *tan'iit* and *tazriif* given by al-B'albakii (1990) to 'adjectivization' and 'adverbialization' in this set are denotatively loose because functionally the underlying *masdar* pattern *TAF'IIL* gives more immediacy to the sense of 'the process of making as or converting into', than the sense of 'the process of using'. The established Arabic term *tahjiir*, for example, is conceived of as 'the process of making as or converting into *hajar* (stone), but not 'the process of using *hajar*'. This also applies to *takwiir* (making as or converting into *kurah* (ball or sphere)) and *taqwiis* (making as or converting into *qaws* (bow)).

In translating 'concretization', al-B'albakii (1990) uses *ta'yiin* to represent the concept of 'the process or result of using an abstract word as a concrete word'. This translation can be misleading in two ways: (1) the underlying pattern *TAF'IIL* gives more immediacy to the sense of 'converting into' than to the sense of 'using as', which is the intended meaning of this term in this context; (2) word-formationally, *ta'yiin* is the *masdar* of '*ayyana*', which has different meanings, but

does not include the meaning of ‘use as ‘*aynii* (lit. concrete) (cf. ‘Aniis et al, 1987: ‘*ayyana*).

Finally, *taṭwii*‘ given by al-B‘albakii (1990) for ‘reflexivization’ is a misleading representation of this concept because in Arabic it means (1) ‘the process of bringing into subjugation, (2) the process of making obedient’ and (3) ‘the process of making reflexive’, but not the process or rule “which introduces the reflexive pronoun into a sentence” (Crystal, 1997: 327) for which *idkhal ḍamiir al-muṭaawa‘ah*, for example, is more denotatively adequate.

4- The translation equivalents for the set of terms denoting ‘the process or result of the conversion of a linguistic element from one type, state or condition into another’:

Table no. (3.2.4)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Adjectivization	<i>al-taḥwiil ‘ilaa na‘t</i>	-	<i>tan‘iit</i>	<i>al-taḥwiil min al-‘idaafah ‘ilaa al-waṣfiyyah</i>
Adverbialization	<i>al-taḥwiil ‘ilaa ḍarf</i>	<i>taḥwiil ‘ilaa qariinah faḍliyyah</i>	<i>taḍriif</i>	-
Consonantization	<i>al-taḥwiil ‘ilaa ṣaamit</i>	-	<i>tamḥiid ṣaamitii</i>	<i>al-taḥawwul ‘ilaa al-ṣaamitiyyah</i>
Diphthongization	<i>idghaam al-ṣawaa‘it</i>	<i>taḥwiil al-muṣawwit ‘ilaa muzdawij</i>	<i>tathniyat al-ṣaa‘it al-‘uḥaadii</i>	-
Grammatical-ization	<i>qa‘wadah</i>	<i>taḥwiil ‘ilaa ‘adawaat</i>	<i>intiḥaa‘</i>	<i>taq‘iid</i>
Labialization	<i>tashfiyah</i>	<i>ḍamm al-shafatayn</i>	<i>tamḥiid shafawii</i>	<i>tashfiyah</i>
Lateralization	-	-	<i>jaanibiyah</i>	-
Monophthong-ization	<i>al-taḥwiil ‘ilaa ṣaa‘it</i>	<i>tawḥiid al-muzdawaj</i>	<i>ifraad al-ṣaa‘t al-thunaa‘ii</i>	<i>al-taḥawwul ‘ilaa ḥarakah</i>

		<i>al-ṣawt</i>		<i>uḥaadiyah</i>
Nasalization	'anfamiyyah + ghunnah + khunnah + ta'niif	'ighnaan	ta'niif	ghunnah
Nominalization	tahwiil 'ilaa 'ism	tahwiil 'ilaa 'ism	tamhiid 'ismii	al-tahawwul 'ilaa al-'ismiyyah
Passivization	-	-	tajhiil	-
Pharyngeal- ization	tahliiq + tafkhiim	itbaaq	bal'amah	al-tahwiil 'ilaa halqii
Phonemicization	-	tahwiil 'ilaa harf ṣawtii	tamhiid funiimii	-
Pronominal- Ization	tahwiil al-'ism 'ilaa damiir	tadmiir	tadmiir	tahwiil 'ilaa al-damiir
Reflexivization	-	-	tatwii'	in'ikaas
Rhotacization	-	'amaliyat tahwiil al-ṣawt 'ilaa raa'	qalb raa'ii	-
Sonorization	-	jahr + ijhaar	ijhaar	ijhaar
Spirantization	insiyaabiyyah + tasyiib	-	tahkiik	-
Fricativization	-	-	-	-
Substantivization	-	-	tamhiid 'ismii	-
Verbalization	al-tahwiil 'ilaa fi'l	tahwiil al-kalimah 'ilaa fi'l	tamhiid fi'lii	-
Yodization	-	tahwiil 'ilaa yaa'	tamhiid yaa'ii	al-tahawwul 'ilaa al-yaa'iyyah
Phonologization	-	-	-	-
Linearization	-	-	-	-
Morpholog- ization	-	-	-	-
Segmentalization	-	-	-	-
Feminization	ta'niith	-	ta'niith	-
Vocalization	'i'laal	tahwiil 'ilaa muṣawwit	'i'laal	'i'laal

A number of terms in this set are not included at all by any of the above terminographers and some others are not included by some of them, as can be seen from the above comparative table. Some of the included terms are not identified in the sense of 'the process or result of the conversion of a linguistic element from one type, state or condition to another', either by all terminographers who include them, such as 'nasalization' and 'spirantization', or by some of them, such as 'adjectivization', 'adverbialization', 'nominalization', 'pronominalization', 'reflexivization', 'pharyngealization', 'spirantization' (cf. al-B'albakii, 1990), 'labialization' (cf. al-Khuulii, 1982) and 'grammaticalization' (cf. Mubaarak, 1995). In translating -ization in the terms identified in the above sense, the above terminographers make use of the following techniques:

1- Employment of the term *tahwiil* or *tahawwul*, as a literal translation of -ization, in a paraphrasal expression containing a prepositional phrase such as *al-tahwiil 'ilaa na't* for 'adjectivization', *al-tahwiil 'ilaa saamit* for 'consonantization', *tahwiil al-'ism 'ilaa damiir* for 'pronominalization' (cf. al-Khuulii, 1982), *al-tahwiil 'ilaa qariinah fadliyyah* for 'adverbialization', *tahwiil al-musawwit 'ilaa muzdawij* for 'diphthongization', *tahwiil 'ilaa 'adawaat* for 'grammaticalization', *al-tahwiil 'ilaa harf sawtii* for 'phonemicization', *tahawwul al-kalimah 'ilaa fi'l* for 'verbalization' (cf. ALECSO, 1989), *al-tahawwul min al-'idaafah 'ilaa al-wasfiyyah* for 'adjectivization', *al-tahawwul 'ilaa harakah uhaadiyyah* for 'monophthongization', *al-tahawwul 'ilaa al-'ismiyyah* for 'nominalization', *al-tahwiil 'ilaa halqii* for 'pharyngealization' and *al-tahawwul 'ilaa al-yaa'iyyah* for 'yodization' (cf. Mubaarak, 1995). The employment of *tahwiil* and *tahawwul* in the above translation equivalents achieves denotative precision, but, unfortunately, does not achieve formal concision.

2- Employment of a *masdar* pattern to form two-word and three-word compounds, in which the pattern forming the compound head functionally represents -ization and the lexical morpheme represents the prefix or combining form to which the rest of the morphological components are added, such as *idghaam al-sawaa'it* for 'diphthongization' (cf. al-Khuulii, 1982), *tawhiid al-muzdawaj al-sawt* for

‘monophthongization’, *tathniyat al-ṣaa’it al-’uḥaadii* for ‘diphthongization’ and *ifraad al-ṣaa’it al-thunaa’ii* for ‘monophthongization’ (cf. al-B‘albakii. 1990). *Idghaam al-sawaa’it* for ‘diphthongization’ (cf. al-Khuulii, 1982) is denotatively inaccurate and misleading because *al-idghaam* in Arabic phonological studies refers to a different phenomenon, namely:

“iskaan al-ḥarf al-’awwal wa idraajuhu fii al-thaanii wa yusammaa al-’awwal mudghaman wa al-thaanii mudghaman fiih. Wa qila: huwa ilbaath al-ḥarf fii makhrajihi miqdaara ilbaath al-ḥarfayn nahwa madda wa ‘adda”(al-Jurjaanii, 1971: 10).¹

In contrast, ‘diphthongization’ is defined in English as:

“any phonological process in which a simple syllabic nucleus (a pure vowel) is converted into a diphthong” (Trask, 1996: 114),

and a diphthong is

“a single syllabic nucleus which begins with one vowel quality and changes more or less smoothly to a second quality, as in [ju] and [ai]”. (Trask, 1996: 114)

In other words, a diphthong is

“a union of two vowels pronounced in one syllable” (OED).

Based on the above definitions, the process in ‘diphthongization’ has to be translated by an Arabic term that means ‘*converting into dual or binary*’, but not ‘*including in or making one*’. This is because ‘diphthong’, as defined above, is rendered into Arabic as *ṣaa’it thunaa’ii*, which is the same translation adopted by al-Khuulii (1982) himself, but not *ṣaa’it mudgham*. Hence, *tathniyat al-ṣaa’t al-’uḥaadii* for ‘diphthongization’ and *ṣaa’it thunaa’ii* for ‘diphthong’, given by al-B‘albakii (1990), maintain the morpho-semantic relationships between the two terms.

¹ This translates as ‘pronouncing the first letter with *sukuun* and including it in the second letter, thus the first is called ‘the included’ and the second ‘the included in’. In other words, it is the keeping of the letter in its place of articulation for the duration of pronouncing two letters as in *madda* and ‘*adda*’.

The same procedure should also apply to ‘monophthong’ and ‘monophthongization’, which is partially adopted by al-B‘albakii (1990), who translates ‘monophthong’ as *ṣaa’it uḥaadii* and ‘monophthongization’ as *ifraad al-ṣaa’it al-thunaa’ii*. If ‘monophthong’ is rendered as *ṣaa’it fardii* or ‘monophthongization’ as *tawḥiid al-ṣaa’it al-thunaa’ii*, full morphological relationships could have been achieved in addition to the already achieved semantic relationships. Achieving morpho-semantic relationships in translating the above related English terms also maintains the sense-relations holding between ‘monophthong’ and ‘diphthong’ and ‘monophthongization’ and ‘diphthongization’. When morphological and semantic relationships between SL terms are not taken into consideration during the process of terminological translation, the result will always be completely or partially unrelated TL equivalents that can easily lead to misconceptualization. Consider, for example, *ṣaa’it thunaa’ii* for ‘diphthong’ and *idghaam al-ṣawaa’it* for ‘diphthongization’, which are given by al-Khuulii (1982).

3- Employment of the technique of intensional paraphrasing in which -ization is translated by a redundant compound term such as ‘*amaliyat taḥwīl al-ṣawt ’ilaa raa’*’ given by ALECSO (1989) for ‘rhotacization’. This translation, which is a lengthy explanation of the SL term, lacks formal concision and semantic compactness which are normally expected in technical terms. Redundancy in translating -ization is reflected in the use of the redundant term ‘*amaliyyat*’, which can conceptually be recovered from the underlying *masdar* pattern *TAF’IIL* forming *taḥwīl* in the above translation.

4- Formation of two-word compounds in which the compound head stands for -isation and is qualified by an adjectival term to specify its nature, such as *tamḥīd ṣaamitii* for ‘consonantization’, *tamḥīd shafawii* for ‘labialization’, *tamḥīd funiimii* for ‘phonemicization’, *qalb raa’ii* for ‘rhotacization’ and *tamḥīd yaa’ii* for ‘yodization’ (cf. al-B‘albakii, 1990). First of all, it should be reiterated that using the term *tamḥīd* in the above translations is denotatively inadequate and misleading due to the above reasons given for the inadequacy of the translation equivalents suggested by the same terminographer for some of the terms in the previous sets.

The term *qalb*, as in *qalb raa'ii* for 'rhotacization', is a literal translation of -ization in the sense of 'the process of converting into'; therefore, denotatively precise.

5- Employment of a *masdar* pattern to produce one-word translation equivalents in which the pattern stands for the suffix -ization and the lexical morpheme stands for the base to which -ization is appended, such as *intiḥaa'* for 'grammaticalization', *tajhiil* for 'passivization', *'ijhaar* for 'sonorization', *ta'niith* for 'feminization' (cf. al-B'albakii, 1990), *qa'wadah* for 'grammaticalization' (cf. al-Khuulii, 1982), *tadmiir* for 'pronominalization' (cf. ALECSO, 1989), *tashfiyah* for 'labialization', *in'ikaas* for 'reflexivization' (cf. Mubaarak, 1995) and *'i'laal* for 'vocalization' (cf. Al-Khuulii, 1982, al-B'albakii, 1990 and Mubaarak, 1995). The above translation equivalents are all formally concise, but only some of them are denotatively precise. The accuracy of these one-word translations can be quickly tested by the following criterion: if the suggested Arabic term denotes 'the process or result of turning or converting into what is denoted by the base to which -ization is appended, then it is an accurate translation, if not, it is inaccurate. To begin with, *qa'wadah* is a nonce formation unless it is a misprint of *qaw'adah*, meaning 'the process of converting into *qawaa'idii* (grammatical). The term *intiḥaa'*, given by al-B'albakii (1990) for 'grammaticalization', is intended to mean 'convert into *naḥwii*, from *al-naḥw*, but, unfortunately, in Arabic it has other different meanings, such as (1) the following of a specific road or way, (2) the moving away from a specified place or point, (3) the depending on, (4) the serious commitment or devotion to, and (5) the heading towards or the intending of ('Aniis et al, 1987: *intiḥaa'*). Likewise, *tajhiil*, given by the same terminographer for 'passivization', does not mean 'the process or result of converting into passive', but (1) the process of relating to *jahl* (ignorance) and (2) the process of leading to ignorance or making ignorant (cf. 'Aniis et al, 1987: *jahhala*). On the same scale, *in'ikaas*, given by Mubaarak (1995) for 'reflexivization', is also inaccurate, first, because the underlying *masdar* pattern denotes 'the process or result of acting reflexively', but not 'the process or result of acting causatively or effectively', as can be understood from the following definition of 'reflexivization':

“the action of making (a verb, noun phrase, etc) reflexive; [or] the process or fact of being made reflexive” (OED).

Second, *in'ikaas* as a composite form means ‘reflection, inversion, reversal or the turning upside down of’, but not ‘convert or make into reflexive’.

The translation equivalent *'i'laal* given for ‘vocalization’ is formally concise and denotatively adequate in describing Arabic, as it applies to a well known morpho-phonological phenomenon related to the use and effect of *huruuf al-'illah* in Arabic word-formation. However, *'i'laal* can be misleading if it is used in describing other languages which lack this phenomenon or express it differently. Therefore, employing the technique of intensional, or extensional, translation to produce other translation equivalents such as *al-tahwiil 'ilaa saa'it*, *qalb saa'itii* or *al-tasyiit* can semantically represent the concept of ‘vocalization’ in this context without causing misconceptualization.

The rest of the above one-word translation equivalents are denotatively adequate because each expresses the meaning of ‘the process or result of converting into what is denoted by the base to which -ization is appended’. The translation equivalent *tadmiir*, given by ALECSO (1989) for ‘pronominalization’, is formed by *TAF'IIL* to mean ‘the process or result of converting into *damiir* or functionally *damiir*-like word. *Tashfiyah*, given by Mubaarak (1995) for ‘labialization’, is formed by *TAF'ILAH* to mean ‘the process or result of converting into *shafawii* (labial)’. The Arabic equivalent *ijhaar*, given by ALECSO (1989), al-B'albakii (1990) and Mubaarak (1995) for ‘sonorization’, is formed by *IF'AAL* to mean ‘the process or result of making or converting into *majhuur* (sonorous). *Jahr*, also given by ALECSO (1989), is formed by *FA'L* and has the same meaning as *ijhaar* in this context. Finally, the translation equivalent *ta'niith*, given by al-Khuulii (1982) and al-B'albakii (1990) for ‘feminization’, is formed by *TAF'IIL* and has the meaning of ‘the process or result of converting into *mu'annath* (feminine).

5- The translation equivalents for the set of terms denoting ‘the process of articulating a linguistic sound or the quality of being articulated in a specified way’:

Table no. (3.2.5)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B'albakii 1990	Mubaarak 1995
Centralization	<i>tahyiid</i> + <i>markazah</i>	<i>intisaab</i>	<i>markazah</i>	-
Dentalization	-	-	<i>tasniin</i>	-
Faucalization	-	<i>tadyiiq</i> <i>wasat</i> <i>al-halq</i>	<i>tahliiq</i>	-
Glottalization	<i>'ihmaaz</i>	<i>hamz + nabr</i>	<i>tahmiiz</i>	-
Labialization	<i>tashfiyah</i>	<i>damm</i> <i>al-shafatayn</i>	<i>tashfiyah</i>	<i>tashfiyah</i>
Nasalization	<i>'anfamiyyah</i> + <i>ghunnah</i> + <i>khunnah</i> + <i>ta'niif</i>	<i>'ighnaan</i>	<i>ta'niif</i>	<i>ghunnah</i>
Laryngeal- ization	-	-	<i>tathniyat</i> <i>al-ihitzaaz</i>	-
Pharyngeal- ization	<i>tahliiq</i> + <i>tafkhiim</i>	<i>iṭbaaq</i>	<i>bal'amah</i>	<i>al-tahwiil</i> <i>'ilaa</i> <i>halqii</i>
Rhotacization	-	<i>'amaliyat tahwiil</i> <i>al-sawt</i> <i>'ilaa</i> <i>raa'</i>	<i>qalb raa'ii</i>	-
Sonorization	-	<i>jahr + ijhaar</i>	<i>ijhaar</i>	<i>ijhaar</i>
Sulcalization	-	-	-	-
Velarization	<i>'iṭbaaq + tafkhiim</i>	<i>isti'laa'</i> + <i>tafkhiim</i>	<i>'iṭbaaq</i>	<i>'iṭbaaq + tafkhiim</i>
Yodization	-	<i>tahwiil</i> <i>'ilaa yaa'</i>	<i>tamhiid yaa'ii</i>	<i>al-tahawwul</i> <i>'ilaa</i> <i>al-yaa'iyyah</i>

Some of the terms in this set are not included by any of the above terminographers and some others are not included by some of them as can be seen from the above table. Some of the included terms are not identified in the above sense such as 'pharyngealization' (cf. Mubaarak, 1995), 'yodization' (cf. ALECSO, 1989 and al-B'albakii, 1990) and 'rhotacization' (cf. ALECSO, 1989). The vast majority of the

above translation equivalents are produced through the employment of a *maṣḍar* pattern to create concise one-word terms in which the pattern represents -ization and the lexical morpheme stands for the base to which the suffix is added. In some cases different translation equivalents are given by different terminographers for the same SL term such as *tahyiid* (cf. al-Khuulii, 1982), *markazah* (cf. al-Khuulii, 1982 and al-B'albakii, 1990) and *intiṣaab* (cf. ALECSO, 1989) for 'centralization'. *Tahyiid* here is misleading because denotatively it represents the concept of 'neutralization'. *Intiṣaab* is denotatively imprecise because it does not mean 'the process of articulating a linguistic sound in a specified way', but 'the process by which the tongue takes a specific position or the result of this process'. In contrast, *markazah*, which means 'the process of making central' can technically be employed to denote 'the process of producing a central sound' or 'the quality of being centralized'. The term 'nasalization' is also given different translations: '*anfamiyyah*, *ghunnah*, *khunnah* and *ta'niif* by al-Khuulii (1982), '*ighnaan* by ALECSO (1989), *ta'niif* by al-B'albakii (1990) and *ghunnah* by Mubaarak (1995). These translation equivalents can be divided into two groups: (1) those denoting a process of articulation, such as *ta'niif* and *ighnaan* and (2) those denoting a result or quality, such as '*anfamiyyah*, *ghunnah* and *khunnah*. *Ta'niif* is a literal translation formed by *TAF'III* to denote 'the process of producing an '*anfii* (nasal) sound'; therefore, it is denotatively adequate. '*Ighnaan* is a free translation formed by '*IF'AAL* to denote 'the process of pronouncing a letter with *ghunnah*'; therefore' it is also denotatively adequate. Out of the three terms denoting 'a result or quality of articulation', only *ghunnah* is semantically adequate as it is a well established term in Arabic phonology denoting 'the result or quality of producing speech sounds by the release of air through the nose'. *Khunnah* is a general term denoting 'the result or quality of making speech more nasal than normal'; hence, it is less denotatively precise than *ghunnah*. Finally, '*anfamiyyah* is a nonce formation apparently intended to mean 'the quality of being made '*anfii* (nasal).

The term 'pharyngealization' is also translated differently as *tahliiq* and *tafkhiim* by al-Khuulii (1982), '*itbaaq* by ALECSO (1989) and *bal'amah* by al-B'albakii (1990). *Bal'amah* is a literal translation formed by *FA'LALAH* to mean 'the

process of producing a *bul‘uumii* (pharyngeal) sound’ or ‘the quality of being produced with the involvement of the pharynx’. *’Itbaaq* is denotatively inadequate because it denotes the process of velarization rather than pharyngealization. *Tahliiq* is intended to mean ‘the process of producing a *halqii* sound’, but denotatively it gives more immediacy to other meanings than the above, such as (1) ‘hovering of the bird, (2) ‘making or developing a *halaqah* (ring or circle)’, etc. (cf. ‘Aniis et al, 1987: *hallaqa*). *Tafkhiim* is denotatively misleading because the production of *al-’aṣwaat al-mufakhamah* /s/, /d/, /t/, and /z/ is more related to ‘velarization’ than ‘pharyngealization’.

Following the above discussion, the Arabic equivalents of *’itbaaq* and *tafkhiim* given by the Arab terminographers to ‘velarization’ are denotatively adequate because they denote ‘the process of producing *’itbaaq* sounds, which are also the above *’aṣwaat mufakhamah*. *’Itbaaq* here is a literal translation formed by *’IF’AAL* to denote ‘the process of producing a *ṭabaqii* (velar) sound by raising the back of the tongue towards the velum’, but *tafkhiim* is a free translation formed by *TAF’IIL* to denote ‘the process of making the produced sound *mufakkhkam*’.

In translating ‘glottalization’, the lexical morpheme (*h-m-z*) is employed by the three terminographers who include the term, but each employs a different *masdar* pattern, thus producing three lexically similar but morphologically different translations. Al-Khuulii (1982) employs *’IF’AAL* to produce *’ihmaaz*, ALECSO (1989) employs *FA’L* to produce *hamz* and al-B‘albakii (1990) employs *TAF’IIL* to produce *tahmiiz*. Denotatively, the three translations can represent the above concept in Arabic, but *hamz* is more established in Arabic phonology than the other two (al-Maṭlibii, 1984: 179). ALECSO (1989) also employs the lexical morpheme (*n-b-r*) to produce *nabr*, which is a synonym of *hamz* in the sense of ‘the process of pronouncing a sound with *hamzah*’. However, *nabr* gives more immediacy to the concept of ‘stress’ for which *nabr* is also used as a translation equivalent in the same dictionary; therefore, and for the sake of avoiding overlapping and misconceptualization, it is probably safer to assign *hamz* or *tahmiiz* to ‘glottalization’ and *nabr* to ‘stress’.

‘Sonorization’ is also translated through the use of one lexical morpheme (*j-h-r*) and two *maṣḍar* patterns (*FA‘L* and *‘IF‘AAL*) producing *jahr* (cf. ALECSO, 1989) and *‘ijhaar* (cf. ALECSO, 1989 and al-B‘albakii, 1990). Both translations are denotatively adequate as both patterns can semantically stand for the process denoted by -ization in the related SL term.

Finally, in translating ‘faucalization’, the paraphrasal expression *tadyiiq wasat al-halq*, given by ALECSO (1989), is denotatively and formally inadequate because, first, it does not denote ‘a process of articulating a linguistic sound in a specified way’, but ‘a process of making the pharynx take a specific shape’. Second, it lacks concision as it is made up of three words. The term *tahliiq*, given by al-B‘albakii (1990), is misleading because it gives more immediacy to other unrelated meanings (‘Aniis et al, 1987: *hallaqa*). In Arabic, a denotatively and formally more adequate translation equivalent for ‘faucalization’ can be coined through the employment of the lexical morpheme (*h-l-q*) and the *maṣḍar* pattern *FA‘LANAH* to form *halqanah* to mean ‘the process of producing a *halqii* sound’ or ‘the quality of being produced with the involvement of the *halq*’.

6- The translation equivalents for the set of terms denoting ‘the process or result of treating a language or linguistic elements in a specified way’:

Table no.(3.2.6)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Categorization	-	<i>taqsiim</i>	<i>tabwiib</i>	<i>taṣniif</i>
Contextual- ization	-	-	<i>taswiiq</i>	-
Formalization	-	<i>ṣiyaaghah</i> <i>riyaadiyyah</i>	<i>tashkiil</i>	<i>taq‘iid</i>
Generalization	-	-	<i>ta‘miim</i>	<i>ta‘miim</i>
Idealization	-	-	-	-
Phonemicization	-	<i>tahwiil</i> ‘ilaa <i>ḥarf</i>	<i>tamḥiid funiimii</i>	-

		<i>ḡawtīi</i>		
Hierarchization	-	-	-	-
Hypostatization	-	-	' <i>ansanah</i>	-
Lemmatization	-	-	-	<i>tabwīb</i>

None of the terms in this set is included by al-Khuulii (1982), and most of them are not included by other terminographers. All the included terms are identified in the above sense with the exception of 'phonemicization', which is identified in the sense of 'the process of converting or the conversion of a linguistic element from one type, state or condition to another'. Only one of the rest of the above translation equivalents is formed through compounding, namely *ḡiyaaghah riyaaḡiyyah* (cf. ALECSO, 1989), in which the pattern *FI'AALAH*, underlying the compound head, stands for the suffix -ization. The other translation equivalents are one-word terms the vast majority of which are formed by the *maḡdar* pattern *TAF'ILL* to represent the process denoted by -ization in the above related SL terms.

The above compound *ḡiyaaghah riyaaḡiyyah* is denotatively loose because semantically it is not related to the description or analysis of natural languages as can be understood from the following definition of 'formalization':

"use of formal languages of mathematics and formal logic to describe natural languages" (Bussmann, 1996: 170).

Tashkiil, given by al-B'albakii (1990) for the same term, is also semantically loose and misleading because the basic aim of the process of formalization in linguistics is not to "highlight the formal features [...] in linguistic studies" (cf. al-B'albakii (1990), but to work out formulations

"whereby rules, statements, and other features of language are capable of being specified in a precise and rigorous way, especially in logical or mathematical terms" (Crystal, 1992: 142).

On the same scale, *taq'iid*, given by Mubaarak (1995), is denotatively imprecise because it denotes 'the process of establishing rules for a language', while

‘formalization’ is ‘the process of describing the rules of a language through the use of formal languages’. In other words, formalization is a way of describing the rules of a language, but not a way of establishing them. Based on the above discussion, ‘formalization’ can be translated as *al-wasf al-suurii* or *al-wasf al-riyaadii* each of which refers to a type of process or result of treating language or linguistic elements in a specified way. Equivalence here is achieved through the employment of the *masdar* pattern *FA‘L* in forming the compound head *al-wasf*, which is qualified by an adjectival term specifying the type or way of description.

In rendering ‘categorization’, only al-B‘albakii (1990) identifies this term as having two senses for both of which he uses one Arabic term. Each of the other two terminographers who include the term uses a different Arabic term, making a total of three lexically different but morphologically similar translation equivalents. These equivalents are *taqsiim* (cf. ALECSO, 1989), *tabwiib* (cf. al-B‘albakii, 1990) and *tasniif* (cf. Mubaarak, 1995). Although the three terminographers employ the same *masdar* pattern *TAF‘IIL* in forming these translation equivalents, denotatively, the term *tasniif* is more precise than the other two as it approximates the two intended meanings given to this term in linguistics more closely than the other two terms. In semantics, ‘categorization’ is employed in the sense of

“the process and result of grouping linguistic symbols and the sections of human experience they represent into classes” (Hartmann and Stork, 1972: 33),

and in the field of grammar, ‘categorization’ is used to refer to

“the establishment of a set of classificatory units or properties used in the description of language, which have the same basic distribution, and which occur as a structural unit throughout the language”. (Crystal, 1997: 55)

In Arabic, the above two concepts denoted by ‘categorization’ can be represented by the term *tasniif* because it denotes the process of treating or classifying in terms of ‘*asnaaf*’ (categories). Semantically, the term *sinf* (category) can be used to refer to both: (1) any type or section of human experience and its associated linguistic sign,

and (2) any classificatory unit in the description of the grammar of a language, *sinf nahwii*.

In translating 'contextualization', al-B'albakii (1990) uses *taswiiq*, which is denotatively misleading as it gives immediacy to the senses of (1) leading a group of animals or humans from one place to another, (2) authorizing a person to decide his or her affairs, and (3) subjecting goods to selling ('Aniis et al, 1987: *sawwaaq*). Word-formationally, the process of placing in or treating as part of a context (*siyaaq*) can be represented in Arabic through the derivation of *tasyiiq*, in which -ization is rendered by the *masdar* pattern *TAF'IL*.

The translation equivalent *ta'miim*, given to 'generalization' by al-B'albakii (1990) and Mubaarak (1995), is denotatively adequate and represents the two senses of the term which are only identified by al-B'albakii (1990). The Arabic term '*ansanah*' used by al-B'albakii (1990) for 'hypostatization' is a literal representation of the underlying concept of 'the process or result of treating an abstract quality as if it were human' for which the term 'personification' is also synonymously used in English (cf. Crystal, 1992: 296). In Arabic, the term *tashkhiis* (the process or result of treating as *shakhṣ* (person)) is more commonly used in this context.

Finally, 'lemmatization' is translated as *tabwiib* by Mubaarak (1995) who identifies it in one sense only, which is the sense given to this term in computational linguistics, namely the process of assigning "each word form a uniform heading under which related textual elements are ordered" (Bussmann, 1996: 272). The second sense of 'lemmatization' is the one used in lexicology for

"the reduction of the inflectional form of a word to its base form and the elimination of homography" (*Ibid*: 272).

Based on the above two definitions, 'lemmatization' can be given two translation equivalents in Arabic: *al-tasniif al-mu'jamii* for its sense in computational linguistics, and *al-tajriid al-mu'jamii* for its sense in lexicology. In both translations,

-ization is rendered by the pattern *TAF'ILL* underlying the two compound heads of *al-tasniif* and *al-tajriid*.

- 7- The translation equivalents for the set of terms denoting 'the process or result of using one language in place of another, or imposing structural features of one language on linguistic elements from another language':

Table no. (3.2.7)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B'albakii 1990	Mubaarak 1995
Anglicization	-	-	<i>naklazah</i>	-
Arabization	<i>ta'riib</i>	-	<i>ta'riib</i>	-
Naturalization	-	-	<i>tatbii'</i>	-
Romanization	<i>rawmanah</i> + <i>taltiin</i>	-	<i>rawmanah</i>	-

In translating terms of this set, two techniques are involved. The first is the employment of a *masdar* pattern representing the suffix -ization to form a verbal action term from a borrowed lexical morpheme through the process of naturalization as is the case in *naklazah*, formed by *FA'LALAH*, and *rawmanah*, formed by *FAW'ALH*, for 'anglicization' (cf. al-B'albakii, 1990) and 'romanization' (al-B'albakii, 1990 and al-Khuulii, 1982) respectively. In these two cases, the SL terms have undergone naturalization through the imposition of Arabic morphological and phonological features on them. This technique of naturalization is always the norm in rendering -ization terms derived from names of languages, countries and persons.

The second translation technique consists in the employment of a *masdar* pattern representing -ization, and an Arabic lexical morpheme to render an -ization derivative formed on an English base or an -ization derivative formed on an originally naturalized Arabic term in English. The first case is represented by *tatbii'* given by al-B'albakii (1990) for 'naturalization' and the second is represented by *ta'riib* given by al-B'albakii, 1990 and al-Khuulii, 1982) for 'arabization' or 'arabicization', which are two variant forms of the same -ization derivative formed

on the anglicized term ‘Arabic’ representing ‘*arabii*. In the above two cases, -ization is rendered by the pattern *TAF‘IIL*.

8- The translation equivalents for the set of terms denoting ‘the process or result of representing a concept or linguistic element in a specified way’:

Table no. (3.2.8)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Capitalization	-	-	<i>takbiir al-ḥarf</i>	-
Lexicalization	<i>ta‘biir mufradaatii</i>	<i>talghiyah</i>	<i>ta‘jiim</i>	<i>ta‘biir mufradaatii</i>
Phonetization	<i>1-tahwiil sawtii 2-kitaabah ṣawtiyyah</i>	-	<i>mu‘aawadah kitaabiyyah</i>	<i>kitaabah ṣawtiyyah</i>
Terminolog- ization	-	-	-	-
Vocalization	<i>‘idaafat al- ḥarakaat</i>	<i>tahwiil ‘ilaa muṣawwit</i>	<i>tahriik</i>	<i>‘idaafat al- ḥarakaat + tashkiil al-ḥuruuf</i>

The above translation equivalents reveal that -ization in this set of terms is rendered into Arabic in two ways: (1) the employment of a *maṣḍar* pattern to form one-word equivalents as in *talghiyah* (cf. ALECSO, 1989), *ta‘jiim* (cf. al-B‘albakii, 1990) for ‘lexicalization’, and *tahriik* (cf. al-B‘albakii, 1990) for ‘vocalization’; (2) the employment of a full word as a compound head formed by a *maṣḍar* pattern as in *ta‘biir mufradaatii* for ‘lexicalization’ (cf. al-Khuulii, 1982 and Mubaarak, 1995), *takbiir al-ḥarf* for ‘capitalization’ (cf. al-B‘albakii, 1990), *kitaabah ṣawtiyyah* (cf. al-Khuulii, 1982 and Mubaarak, 1995), *mu‘aawadah kitaabiyyah* (cf. al-B‘albakii, 1990) for ‘phonetization’, *‘idaafat al-ḥarakaat* and *tashkiil al-ḥuruuf* for ‘vocalization’ (cf. al-Khuulii, 1982 and Mubaarak, 1995).

Before we discuss the plausibility of these translations, it is worth pointing out that based on the explanations given under the entries of ‘lexicalization’ and

'phonetization' it is clear that the different translations given to these two terms are the outcome of different interpretations of these terms by the Arab terminographers as follows:

1- 'lexicalization'

- | | |
|---------------------|--|
| al-Khuulii (1982) | 1- the expression of meaning through words
2- the use of one-word instead of more than-one-word expressions |
| ALECSO (1989) | the change into a single word |
| al-B'albakii (1990) | the adoption of a word into the lexicon of a language |
| Mubaarak (1995) | the expression of meanings through words |

2- 'phonetization'

- | | |
|---------------------|---|
| al-Khuulii (1982) | a writing that represents utterances through allophonic symbols |
| al-B'albakii (1990) | the use of logograms to express hard-to-represent words |
| Mubaarak (1995) | the representation of linguistic sounds by graphic symbols |

Following this clarification, it must be reiterated here that 'lexicalization' in the sense of 'the process or result of representing a concept or linguistic element in a specified way' has two established meanings:

1- "the expression of a grammatical or semantic category by a lexical item" (Hartmann and Stork, 1972: 129)

2- "the adoption of a word into the lexicon of a language as a usual formation that is stored in the lexicon and can be recalled from there for use" (Bussmann, 1996: 279)

or

"the process of finding words for new concepts" (Wales, 1989: 275-276)

Following the above definitions of ‘lexicalization’, *talghiyah* given by ALECSO (1989) is a denotatively imprecise nonce formation, supposedly derived from *lughah*. The translation equivalent *ta’jiim* given by al-B‘albakii (1990) is formally concise and morpho-semantically related to *mu‘jam* (lexicon), *mu‘jamii* (lexical), *wahdah mu‘jamiyyah* or ‘*ajamah* (lexeme), etc. The problem with *ta’jiim* is that denotatively it gives more immediacy to the already established concept of ‘the process or result of disambiguating a written text (usually a manuscript) by providing it with the necessary diacritics such as dots and vowel signs’ (ibn Manzuur/XII: ‘*ajama*). *Ta’biir mufradatii* given by al-Khuulii (1982) and Mubaarak (1995) is only denotatively adequate in rendering the first sense of ‘lexicalization’, but not the second. This translation does not also maintain the morpho-semantic relationships with actual or potential translation equivalents for ‘lexicon’, ‘lexical’, ‘lexeme’, etc., for the formation of which the lexical morpheme (‘-j-m’) is employed. Based on this discussion, ‘lexicalization’ can be translated as *al-tamthiil al-m‘jamii* (the process of lexical representation) for sense (1) and *al-ma‘jamah*¹ (the process of including or representing within the *mu‘jam*) or *al-ta’jiim* (the process of including or representing lexically, or as *wahdah mu‘jamiyyah* or ‘*ajamah*) for sense (2).

The term ‘phonetization’ is used in linguistics to mean ‘the process of writing words or sounds phonetically’ (NSOED), therefore, *kitaabah sawtiyyah*, but not *mu‘aawadah sawtiyyah*, is denotatively adequate. This term can also be translated as *tamthiil sawtii*, in which -ization is literally rendered as *tamthiil*.

Finally, the translation equivalent *takbiir al-harf*, given by al-B‘albakii (1990) for ‘capitalization’, is denotatively adequate in terms of both (a) rendering -ization as *TAF‘IIL* and (b) rendering the base ‘capital’ as *harf kabiir* (capital letter).

Following the above critical discussion of the translation equivalents given by four Arab terminographers to the linguistic terms formed by the suffix -ization, the following conclusions are made:

¹ This translation is also given by Barakah (no date).

1- The -ization derivatives denoting ‘the process or result of bringing or the coming of a language or a linguistic element to a specified state’ can be divided semantically into two groups according to which they are translated as follows:

- (a) Semantically simple terms are translated by one-word equivalents in which -ization is either rendered by the *masdar* pattern *TAF‘ILL*, denoting intensity and causativity, or *TAFA‘‘UL*, denoting reflexivity, or both, as follows:

actualization	<i>tahqiiq / tahaqquq</i>
realization	<i>tahqiiq / tahaqquq</i>
fossilization	<i>tahajjur</i>
indigenization	<i>tawattun</i>
nativization	<i>tawattun</i>
internalization	<i>tasharrub / tahsiil</i>
institutionalization	<i>ta’assus</i>

- (b) Semantically complex terms are translated by compound equivalents in which -ization is translated by the compound head, which is a full word formed by the *masdar* pattern *TAFA‘‘UL*, denoting reflexivity, as follows:

creolization	<i>takawwun al-lughah al-muwalladah</i> <i>tabalwur al-lughah al-muwalladah</i>
lexicalization	1- <i>tahajjur mu‘jamii</i> 2- <i>tahawwur mu‘jamii</i>
idiomatization	<i>tahajjur mu‘jamii</i>
pidginization	<i>tahajjun lughawii</i>
dialectalization	<i>tafarru‘ lahjii</i> <i>tasha‘‘ub lahjii</i>

2- The -ization derivatives denoting ‘the process or result of forming a linguistic element in a specified way’ can be divided, according to the nature of the linguistic element formed, into two groups:

- a- Terms denoting the formation of lexical items
- b- Terms denoting the formation of grammatical items

The suffix -ization in group (a) is translated consistently, through intensional translation, as *ṣawgh* such as:

acronymization	<i>ṣawgh al-kalimaat al-'awaa'iliyyah</i> ¹
adjectivization	<i>ṣawgh al-ṣifah / al-na't</i>
adverbialization	<i>ṣawgh al-ẓarf</i>
nominalization	<i>ṣawgh al-'ism</i>
substantivization	<i>ṣawgh al-'ism</i>

It is worth reiterating here that -ization in 'adjectivization' and 'adverbialization' can be translated by the *maṣdar* pattern *TAF'IL* to produce concise one-word equivalents: *tan'iid* and *tagziif* respectively. However, because the rest of the terms in this group can not be translated in the same way, terminologically it is more appropriate to achieve consistency in all TL terms than concision in some of them only. The suffix -ization in group (b) is either translated extensionally by a *maṣdar* pattern as in '*iykaa*' for 'cliticization', or communicatively by a full word as in *taqdiim mawduu'ii* for 'thematization' and 'topicalization'.

3- The suffix -ization in the set of terms denoting 'the process or result of using a linguistic element in a specified way' is translated by one of the full words of '*isti'maal* or *tawziif*, or both, depending on the contextual meaning of the SL term in question as follows:

(a) When -ization means 'the use of', it is translated consistently as '*isti'maal* such as:

adjectivization	<i>'isti'maal al-na't / al-ṣifah</i>
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¹ For the translation of 'acronym' see the discussion under the suffix -nym.

adverbialization	'isti'maal al- <u>z</u> arf
nominalization	'isti'maal al-'ism
pronominalization	'isti'maal al- <u>d</u> amiir
reflexivization	'isti'maal <u>d</u> amiir al-mu <u>t</u> aawa'ah
substantivization	'isti'maal al-'ism

(b) When -ization means 'the use or employment as', it is rendered consistently as *tawziif* such as:

adjectivization	al-tawziif al-na'tii
adverbialization	al-tawziif al- <u>z</u> arfii
concretization	al-tawziif al- <u>h</u> issii
substantivization	al-tawziif al-'ismii

4- -ization in all terms denoting 'the process or result of converting or the conversion of a linguistic element from one type, state or condition to another' can be translated consistently as *tahwiil* 'ilaa or *tahawwul* 'ilaa, through the technique of intensional translation, as follows:

adjectivization	<i>tahwiil</i> 'ilaa na't
adverbialization	<i>tahwiil</i> 'ilaa <u>z</u> arf
consonantization	<i>tahwiil</i> 'ilaa <u>s</u> aamit
grammaticalization	<i>tahwiil</i> 'ilaa qawaa'idii
labialization	<i>tahwiil</i> 'ilaa shafawii
lateralization	<i>tahwiil</i> 'ilaa jaanibii
nasalization	<i>tahwiil</i> 'ilaa 'anfii
nominalization	<i>tahwiil</i> 'ilaa 'ism
passivization	<i>tahwiil</i> 'ilaa al-majhuul
pharyngealization	<i>tahwiil</i> 'ilaa <u>h</u> alqii / bul'uumii
phonemicization	<i>tahawwul</i> 'ilaa <u>s</u> iitah
pronominalization	<i>tahwiil</i> 'ilaa <u>d</u> amiir
reflexivization	<i>tahwiil</i> 'ilaa mu <u>t</u> aawa'

rhotacization	<i>tahwiil 'ilaa raa'</i>
sonorization	<i>tahwiil 'ilaa majhuur</i>
spirantization	<i>tahwiil 'ilaa ihtikaakii</i>
fricativization	<i>tahwiil 'ilaa ihtikaakii</i>
substantivization	<i>tahwiil 'ilaa 'ism</i>
verbialization	<i>tahwiil 'ilaa fi'l</i>
yodization	<i>tahwiil 'ilaa yaa'</i>
phonologization	<i>tahawwul 'ilaa siitii</i>
linearization	<i>tahawwul 'ilaa sawtayn</i>
segmentalization	<i>tahawwul 'ilaa sawtayn</i>
morphologization	1- <i>tahawwul 'ilaa 'unsur sarfii</i> 2- <i>tahawwul 'ilaa haalah sarfiyyah</i>
feminization	<i>tahwiil 'ilaa mu'annath</i>
vocalization	<i>tahwiil 'ilaa saa'it</i>
diphthongization	<i>tahwiil al-saa'it (al-fardii) 'ilaa thunaa'ii</i>
monophthongization	<i>tahwiil al-saa'it (al-thunaa'ii) 'ilaa fardii</i>

The above translation equivalents are denotatively adequate, but formally inconcise as they consist of at least three words. Another way of producing concise translation equivalents is through the employment of extensional translation, in which -ization is rendered by a *masdar* pattern. The problem with this technique is that it can only be applied to the following terms:

adjectivization	<i>tan'iit</i>
adverbialization	<i>tazriif</i>
consonantization	<i>tasmiit</i>
grammaticalization	<i>qaw'adah</i>
labialization	<i>tashfiyah</i>
lateralization	<i>tajniib</i>
nazalization	<i>ta'niif</i>
pharyngealization	<i>halqanah / bal'amah</i>
pronominalization	<i>tadmiir</i>

sonorization	<i>jahr / 'ijhaar</i>
linearization	<i>tajazzu'</i>
segmentalization	<i>tajazzu'</i>
feminization	<i>ta'niith</i>
vocalization	<i>tasyiit</i>
diphthongization	<i>tathniyat al-<u>saa</u>'it</i>
monophthongization	<i>ifraad al-<u>saa</u>'it</i>

The suffix -ization in the rest of the terms can only be adequately translated as *tahwiil 'ilaa* or *tahawwul 'ilaa*.

5- With the exception of 'rhotacization' and 'yodization' -ization in the set of terms denoting 'the process of articulating a linguistic sound or the state or quality of being articulated in a specified way' can be translated consistently by a *maṣḍar* pattern, through extensional translation, to produce concise one-word equivalents as follows:

centralization	<i>markazah</i>
dentalization	<i>tasniin</i>
faucalization	<i><u>h</u>alqanah</i>
glottalization	<i>hamz / tahmiiz</i>
labialization	<i>tashfiyah</i>
nasalization	1- <i>ta'niif / ighnaan</i> 2- <i>ghunnah</i>
laryngealization	<i><u>h</u>anjarah</i>
pharyngealization	<i><u>h</u>alqanah / bal'amah</i>
sulcalization	<i>taq'iir</i>

The above two excepted terms of 'rhotacization' and 'yodization' are translated intensionally as *'ilh^haaq raa'ii* and *isbaaq yaa'ii* respectively.

6- The suffix -ization in the set of terms denoting 'the process or result of treating a language or linguistic elements in a specified way' is either translated extensionally

by a *maṣḍar* pattern, or intensionally by a full word, depending on the semantic complexity of the English term as follows:

(a) In semantically simple terms, -ization is rendered by a *maṣḍar* pattern producing concise one-word equivalents such as:

categorization	<i>taṣniif</i>
contextualization	<i>tasyiiq</i>
generalization	<i>ta'miim</i>
hypostatization	<i>tashkhiis</i>

(b) In semantically complex terms, -ization is translated by a full word producing two-word compound equivalents such as:

formalization	<i>wasf suurii / wasf riyaaḍii</i>
idealization	<i>ta'miim mithaalii / iftiraad mithaalii</i>
phonemicization	<i>wasf siitii / tahlil siitii</i>
hierarchization	<i>taṣniif haramii / tahlil haramii</i>
lemmatization	1- <i>tajriid mu'jamii</i> 2- <i>taṣniif mu'jamii</i>

7- The suffix -ization in the set of terms denoting 'the process or result of using one language in place of another or imposing linguistic features in one language on a linguistic element from another language' is consistently translated by a *maṣḍar* pattern, through extensional translation, to yield one-word equivalents such as:

anglicization	<i>naqlazah / naklazah</i>
arabization	<i>ta'riib</i>
naturalization	<i>tatbi'</i>
romanization	<i>rawmanah</i>

8- -ization in the set of terms denoting 'the process or result of representing a concept or linguistic element in a specified way' is translated by a full word when the SL term is semantically complex, and by a *maṣḍar* pattern when it is semantically simple. In some cases, both translation techniques are valid as can be seen from the following list:

capitalization	<i>takbiir al-<u>h</u>arf</i>
lexicalization	1- <i>al-tamthiil al-mu'jami</i> 2- <i>al-ma'jamah / al-ta'jīm</i>
phonetization	<i>al-tamthiil al-<u>s</u>awtii</i> <i>al-kitaabah al-<u>s</u>awtiyyah</i>
terminologization	<i>al-tamthiil al-'<u>i</u>stilaahii</i> <i>al-'<u>i</u>stilaah</i>
vocalization	<i>tamthiil al-<u>s</u>awaa'it</i> <i>al-ta<u>h</u>riik</i>

Chapter IV

Translating the suffixes -lect, -eme and -nym

4.1 -lect

This suffix is a newly created one in English as it gained life as a lexical item from the linguistic term 'dialect' only by the middle of the twentieth century (NSOED). Its creation came as a morphological contraction of and a semantic abstraction from the term 'dialect' in the sense of 'a language variety' to meet a terminological need in sociolinguistics related to

“forming nouns denoting a variety within a language, a form of speech defined by a homogeneous set of rules, as *acrolect*, *basilect*, *idiolect*, *sociolect*, etc.” (NSOED).

Being originally created in linguistics, this suffix does not seem to be productive elsewhere. In fact, even in linguistics its productivity seems to be very limited, mainly in sociolinguistics, especially in the study of the development of creole languages. The terms 'sociolect', 'idiolect' and 'genderlect' are also used in stylistics for their sociolinguistic implications for the study of style types and characteristics. In stylistics, 'idiolect' refers to “a system of individual stylistic features” (Wales, 1989), which is a more specific concept related to the use of 'language' rather than 'dialect'. The terms 'metalect' and 'regiolect' are idiosyncratically used by Mackey (1990: 108) to refer to 'meta-dialects of the same metalanguage' of linguistics and 'regional language variation' respectively. He also employs 'metalect' in creating technical compounds such as 'regional metalect', 'cultural metalect', 'ideological metalect' and 'temporal metalect'. He further highlights the possible employment of the suffix -lect in creating the term 'bilectalism' to refer to 'the ability to use two languages', based on the abstractively created term 'lect' with the sense of 'language variety' (*Ibid*: 114). According to Wales (1989: 274), 'lect' as a substantive was

“derived from the pattern of established words like dialect and idiolect [...] [and] is now used in sociolinguistics as a generic term equivalent to a language variety”.

The suffix -lect is also used to denote ‘a type of language’ not ‘a variety within a language’ such as ‘cryptoelect’, which means “a secret or coded language” (NSOED).

Morphologically, the substantives formed by this suffix can be divided into four pattern types:

- | | |
|-----------------------------|---|
| 1. Combining form + -lect: | sociolect, idiolect, isolect, matrilect,
mesoelect, acrolect, basilect,
cryptoelect |
| 2. Prefix + -lect: | paralect |
| 3. full word + -lect: | genderlect |
| 4. Contracted word + -lect: | satellect (satellite + -lect)
regiolect (region + -lect) |

Denominal adjectives from -lect formations are formed by the suffix -al such as ‘paralectal’. In the above mentioned substantives, -lect is always the determinatum, while the base to which it is affixed is semantically the determinant. Therefore, -lect in these substantives either denotes ‘a type of language variety’, ‘a type of language’ or ‘a distinguished stylistic use of language’, as can be seen in the following lists:

1- A type of language variety:

acrolect	in sociolinguistics, a prestige or standard variety (or lect) against which it is possible to compare other lects. It is contrasted with mesoelect and basilect
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basilect	in sociolinguistics, a linguistic variety (or lect) most remote from the prestige language (the matriclect) or acrolect. It is also contrasted with the intermediate variety or the mesoclect
isoclect	in dialectology, a variety that differs from another variety by only one feature. An isoclect may designate the speech of an individual or of many individuals using the same style
matriclect	mother dialect
mesoclect	the dialect or variety of any language with an intermediate level of prestige; an intermediate form between the acrolect and the basilect
paralect	parallel or adjacent dialect
genderlect	a speech variety or lect that distinguishes males and females
satellect	dependent dialect
rgioclect	regional dialect
sociolect	a variety of language that is characteristic of the social background or status of its user
idiolect	in sociolinguistics, the speech habits of an individual in a speech community as distinct from those of a group of people

2- A type of language:

cryptoclect	a private language that is intended to be opaque to all or most outsiders
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3- A distinguished stylistic use of language:

idiolect	in stylistics, a system of individual stylistic features, or authorial style
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Following this view of the origin, linguistic nature and technical employment of this suffix in English, let us see how the concepts denoted by this suffix are expressed in Arabic.

Two main terms are used in Arabic to denote a distinctive variety of a language. These terms are *lughah* and *lahjah*. The term *lughah* is polysemous as it is used to refer to both 'language' (lit. *lughah*) and 'dialect' (lit. *lahjah*). Its employment to refer to the concept of dialect is found in classical sentences such as *wa hiya lughatun fii Quraysh, tilka lughatun fi al-Yaman*, etc., which refer to the regional variation of Arabic in the Arabian peninsula during the pre- and early Islamic periods before the language was codified. It was also used in the plural in compounds such as *lughaat al -'arab* and *lughaat ahl al-jaziirah* to refer to 'the dialects of Arabs' and 'dialects of the inhabitants of the (Arabian) peninsula' respectively. The term *lahjah* is also polysemous as it denotes four concepts: (a) the tongue or the apex, (b) a person's language of habitual use, (c) a way of linguistic performance, and (d) timbre or the tone of voice (cf. ibn Manzoor/II: *Lahaja* and 'Aniis et al, 1987: *Lahjah*). This term is also used in classical writings to refer to the same regional linguistic variation during the same periods. Another term related to the phonetic aspect of linguistic performance is *luknah*, by which is meant 'the mispronunciation or phonetic deformation resulting from the unhabitual use of a foreign language' ('Aniis et al, 1987: *Luknah*). The expression *darbun mina al-kalaam* is sometimes used to refer to 'a special type of language use' or 'a special way of uttering words or sentences'.

In modern times, semantic specialisation seems to have identified the Arabic term *lughah* with the concept of 'language', and the term *lahjah* with the concept of 'dialect'. This is manifest in the glossaries of technical terms produced by the Cairo academy (Cairo academy, Technical Terms: XV, XVI) and the English-Arabic dictionaries of linguistic terms such as al-Khuulii (1982), Bakalla et al (1983), ALECSO (1989) and al-B'albakii (1990).

It must be mentioned here that most of the concepts denoted in English by the -lect derivatives, such as 'acrolect', 'mesolect', 'basilect' and 'satellect' are not available in Arabic due to the absence of a similar study of the development of creole

languages in Arabic, and due to the recentness of this type of study in modern linguistics. However, despite the lack of a separate study of sociolinguistic issues in Arabic linguistics, some of the concepts denoted by some of the -lect derivatives are present in Arabic, though not necessarily intensionally and extensionally equivalent. These terms include *al-lahjah al-saa'idah* (lit. the prevalent dialect), *lahjat al-fard* (lit. the individual's dialect), *lahjat al-khaassah* (lit. the elite's dialect) and *lahjat al-'aammah* (lit. the layman's dialect). The concept of 'distinguished stylistic use of language' is normally expressed in Arabic by the term '*usluub*', which refers to "the way in which an individual writer uses language" ('Aniis et al, 1987: *salaba*).

In transferring the concepts denoted by the English suffix -lect into Arabic, three Arab terminographers, namely: al-Khuulii (1986), al-B'albakii (1990) and Ghazaalah (1996), use five Arabic terms: *darb*, *lahjah*, *lughah*, *luknah* and *luhayjah*, as can be seen from the following table of suggested translation equivalents:

Table no. (4.1.1)

SL Terms	al-Khuulii 1986	al-B'albakii 1990	Ghazaalah 1996
Acrolect	<i>lahjah qariibah</i>	<i>darb 'a'laa</i>	<i>lahjah 'asaasiyyah</i> + <i>lughah</i> <i>bidaa'iyyah</i>
Basilect	<i>lahjah ba'iidah</i>	<i>darb 'adnaa</i>	<i>lughah 'asaasiyyah</i> + <i>lahjah</i>
Cryptlect	-	-	-
Genderlect	-	-	<i>lahjah jinsiyyah</i> + <i>lahjat al-dukuur wa</i> <i>al-'inaath</i> + <i>lahjah</i> <i>mumayyizah bayna</i> <i>al-jinsayn</i>
Idiolect	<i>luknah</i> + <i>lahjah</i> <i>fardiyyah</i>	<i>luhayjah</i>	<i>lahjah shakhṣiyyah</i> + <i>luhayjah</i>

Isolect	-	<i><u>darb</u> muqaarib</i>	<i>lahjah muqaaribah</i>
Matrilect	-	<i><u>darb</u> 'a'laa</i>	<i>lahjah 'ulyaa</i>
Mesolect	-	<i><u>darb</u> 'awsat</i>	-
Paralect	-	-	-
Regiolect	-	-	-
Satellect	-	-	-
Sociolect	<i>lahjah ijtimaa'iyyah</i>	<i>lahjah ijtimaa'iyyah</i>	<i>lahjah ijtimaa'iyyah + lahjah tabaqiyyah</i>

Al-B'albakii (1990) uses the term *darb* for all concepts related to the study of the development of creole languages as shown in the following list:

acrolect	<i><u>darb</u> 'a'laa</i>
basilect	<i><u>darb</u> 'adnaa</i>
isolect	<i><u>darb</u> muqaarib</i>
matrilect	<i><u>darb</u> 'a'laa</i>
mesolect	<i><u>darb</u> 'awsat</i>

For 'idiolect' he uses *luhayjah*, which is the diminutive form of *lahjah*, and for 'sociolect' he uses *lahjah 'ijtimaa'iyyah* rather than *darb 'ijtimaa'ii*. Let us now assess the plausibility of these Arabic equivalents. First, it should be pointed out that the attempt by al-B'albakii to distinguish the conceptually related terms used for the study of creole languages from the rest of the -lect derivatives, is achieved at the expense of denotative precision and formal consistency. This is so because the Arabic term *darb* does not denote 'a variety of language' intrinsically, but just 'a variety or type of any thing'; therefore, it requires a modifier, such as *lughawii* (linguistic) or *lahjii* (dialectal), in order to specify the nature of the variety or type. However, if a modifier is added to the structure of the Arabic equivalents given by al-B'albakii (1990), denotative precision would be at the expense of formal concision,

not to mention the problem of inconsistency with other terms. The following list shows how formal concision is lost when a modifier is added:

acrolect	<i><u>darb lahji</u> 'a'laa</i>
basilect	<i><u>darb lahji</u> 'adnaa</i>
isolect	<i><u>darb lahji</u> muqaarib</i>
mesolect	<i><u>darb lahji</u> 'awsat</i>

In this case, denotative precision and formal concision can only be married if a single Arabic term that has the same denotation as -lect does in English is employed. In fact, this is what has been done by al-B'albaki himself in respect of 'sociolect', which he translates as *lahjah 'ijtimaa'iyyah*. His translation of 'idiolect' as *luhayjah* is also subject to criticism, mainly in respect of the employment of the diminutive pattern, which produces a conceptually misleading translation. This is because in English, 'idiolect' exhibits none of the senses normally denoted by the diminutive form. The combining form *idio-* is used in English with the sense of 'own', 'personal', 'private' or 'distinct' (NSOED), and -lect either denotes 'language variety', 'a type of language' or 'a distinguished stylistic use of language', and neither of these senses can be said to have any connection with diminution. The diminutive pattern in Arabic usually denotes diminution (in number or size), endearment, contempt or enhancement (al-'Astrabaadhii, 1975/I: 190-192, and Wright, 1859/I: 166), therefore, conceptually *luhayjah* here can imply insignificance. Finally, al-B'albaki (1990) does not distinguish between the two uses of 'idiolect' in sociolinguistics and stylistics.

In Ghazaala (1996), the three Arabic terms *lughah*, *lahjah* and *luhayjah* are used inconsistently to render some of the concepts denoted in English by the suffix -lect. In translating 'idiolect', Ghazaalah (1996) also does not distinguish between the two senses of this term in sociolinguistics and stylistics. Here too, 'idiolect' is translated as *luhayjah*, and 'sociolect' is given two translations: *lahjah 'ijtimaa'iyyah* and *lahjah tabaqiyyah*. Inconsistency is manifest in the equivalents given to the

terms which are related to the study of creole languages as can be seen from the following list:

acrolect	<i>lahjah</i> 'asaasiyyah / <i>lughah</i> bidaa'iyyah
basilect	<i>lughah</i> 'asaasiyyah / <i>lahjah</i>
isolect	<i>lughah</i> muqaaribah
matrilect	<i>lughah</i> 'ulyaa ¹

It is clear that 'acrolect' is given *lahjah* as a main equivalent and *lughah* as a secondary equivalent, while 'basilect' is given the opposite. 'Isolect' and 'matrilect' are given only *lughah*. This inconsistent use of *lughah* and *lahjah* can be a source of misconceptualization in Arabic. Furthermore, translating -lect in these formations as *lughah* may lead to conceptual overlapping with the translations of the term 'language' in some technical compounds such as 'basic language' (*lughah* 'asaasiyyah), primitive language' (*lughah* bidaa'iyyah), etc.

In al-Khuulii (1986), the suffix -lect is translated as *lahjah* in 'acrolect' (*lahjah qariibah*), 'basilect' (*lahjah ba'iidah*) and 'sociolect' (*lahjah 'ijtimaa'iyyah*). 'Idiolect' is given two equivalents: *lahjah fardiyyah* and *luknah*. Mubaarak (1995) also uses *luknah* and *lahjah fardiyyah* for 'idiolect'. The use of the Arabic term *luknah* for 'idiolect' is conceptually misleading due to the fact that *luknah* in Arabic differs intensionally and extensionally from 'idiolect'. In Arabic, the term *luknah* denotes 'mispronunciation and lack of fluency in using a foreign or unhabitual language' (ibn Manzoor/ XIII: *Lakana*), which is by no means equivalent to any of the English definitions given to 'idiolect' in sociolinguistics or stylistics. In sociolinguistics, 'idiolect' is defined as

"the linguistic system of one person, differing in some detail from that of all other speakers of the same dialect or language" (OED).

It is also defined as

¹ Emphasis added in bold.

“the speech habits of an individual in a speech community, as distinct from those of a group of people” (Wales, 1989: 230).

In stylistics, ‘idiolect’ is defined as

“a system of individual stylistic features. [This implies that] personal identity is seen not only in speech [...] but in writing habits: each author will have his or her own stylistic idiolect or authorial style” (*Ibid*: 230)

Based on this intensional comparison between *luknah* and ‘idiolect’, we can safely rule out any possibility for using *luknah* as an equivalent to the English term ‘idiolect’.

Following this critical review of the Arabic equivalents given by the above three Arab terminographers to the English suffix -lect, and based on the technical employment of this suffix in linguistics, we can conclude that -lect is translated as *lahjah* in the sense of ‘a language variety’, *lughah* in the sense of ‘language’ and ‘*usluub*’ in the sense of ‘a distinguished stylistic use of language’, as follows:

1- The set of terms in which -lect denotes ‘a language variety’:

acrolect	<i>al-lahjah al-’asmaa</i>
basilect	<i>al-lahjah al-’adnaa</i>
isolect	<i>al-lahjah al-mukhaalifah</i>
matrilect	<i>al-lahjah al-’umm</i>
mesolect	<i>al-lahjah al-wustaa</i>
paralect	<i>al-lahjah al-musaahibah</i>
satellect	<i>al-lahjah al-taabi’ah</i>
genderlect	<i>al-lahjah al-mumayyizah lil-jins</i>
idiolect	<i>al-lahjah al-shakhṣiyyah</i> (in sociolinguistics)
sociolect	<i>al-lahjah al-’ijtimaa’iyyah</i>
regiolect	<i>al-lahjah al-’iqliimiyyah / al-mahaliyyah</i>

The above suggested translation equivalents show that both denotative precision and formal consistency are achieved through the employment of the term *lahjah*.

2- The term in which -lect denotes 'a distinguished stylistic use of language':

idiolect *al-'usluub al-shakhsii* (in stylistics)

3- The term in which -lect denotes 'a language':

cryptolect *al-lughah al-sirriyyah*

Thus, the English single-word derivatives formed by -lect are translated into Arabic by two-word or, in the case of 'genderlect', three-word compounds rather than by the employment of morphological patterns. This is because in English, the suffix -lect originally stands for the term 'dialect', which is a full lexical item whose meaning is not a general functional one, such as 'agent', 'patient' or 'instrument', but a specific generic entity.

4.2 -eme

This suffix is not an original lexical item in the English lexicon as it has been extracted from the linguistic technical term 'phoneme' and morphologically employed as a suffix by modern linguists to form nouns denoting 'units of structure' (NSOED). The term 'phoneme' itself is also new in English as it was borrowed from French by the late nineteenth century, when it was technically used in linguistics to denote 'a unit of sound in a language that cannot be analysed into further units and can distinguish one word from another' (*Ibid*). On the analogy of phoneme, a number of technical terms have been coined and used by different linguists, developing similar or different theories in different places, to designate theoretical units of structure related to the different levels of linguistic analysis such

as 'lexeme', 'morpheme', 'moneme', 'glosseme', 'sememe', 'grapheme', 'tagmeme', 'plereme', 'ceneme', 'toneme', 'chroneme', 'syntagmeme', etc. In non-verbal communication, -eme has also been put to use to create terms such as 'kineme', which denotes "a meaningful unit of body movement or gesture" (NSOED). However,

"of the many units created in recent decades, most are restricted to specific theories and works, and have little current use" (McArthur, 1992: 348)

such as Bloomfield's 'glosseme', 'phememe', 'taxeme', 'tagmeme' and 'episememe', Hjelmslev's 'glosseme', 'ceneme', 'prosodeme', and 'plereme', and Pike's 'tagmeme', 'syntagmeme' and 'behavioureme'. The most established and widely used are 'phoneme', 'lexeme', 'morpheme', 'toneme', 'chroneme', and 'grapheme'. Following the establishment of these terms, which reflects the establishment of the basic linguistic notions they stand for, the suffix -eme has become very much less productive than it used to be during the earlier decades of modern linguistics. Of the recent idiosyncratic coinages in -eme is 'listeme' used by some linguists to refer to "the items listed in the lexicon" (Katamba, 1993: 295).

Morphologically, the derivatives formed by the suffix -eme can be divided into five types:

- 1- Full word + -eme: behavioureme, classeme, grapheme, kineme,
phememe, syntagmeme, syntaxeme, toneme,
soneme

- 2- Contracted word + -eme: prosodeme (prosod (ic) + -eme
lexeme = lex (icon) + -eme
proxeme = prox (emity) or prox (emics) + -eme
narreme = narr (ation) or narr (ative) + -eme

- 3- Combining form + -eme: moneme, chroneme, glosseme.

4- Greek root + -eme:	ceneme or keneme = <i>kenos</i> (empty) -eme
	morpheme = <i>morph</i> (form) -eme
	plereme = <i>pleres</i> (full) -eme
	semanteme = <i>semanticos</i> (significant) -eme
	sememe = <i>sema</i> (sign or mark) -eme
	tagmeme = <i>tagma</i> (some thing arranged) -eme
	taxeme = <i>taxis</i> (arrangement) -eme
	(cf. NSOED).

5- Blending:	stroneme = stress + phoneme
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Semantically, the derivatives of the first two types are more transparent than those of the third and fourth types, because in the first two types, -eme is appended to words already used with specific meanings in linguistics, while instances of the third and fourth types are either formed on combining forms of Greek origin, as in type three, or on borrowed Greek roots as in type four. In other words, the determinants in the syntagmas of the first two types are more or less semantically specific and well established, while the determinants in the syntagmas of the third and fourth types, especially the fourth, are semantically less specific and, therefore, they are subject to idiosyncratic interpretation. This morpho-etymological background might be one of the reasons why some of the terms from the third and fourth types were used differently by different linguists during the past decades such as ‘glosseme’ and ‘tagmeme’ as used by Bloomfield and as used in Glossematics and Tagmemics¹, ‘morpheme’ as used by Martinet and as used by American structuralists, and

¹ Bloomfield defines ‘glosseme’ as the smallest meaningful unit of linguistic signalling (cf. Bloomfield, 1933: 264) and ‘tagmeme’ as the smallest unit of grammatical form (cf. *Ibid.*: 166). In Glossematics, ‘glosseme’ is a “cover term for minimal linguistic units of *langue* [...] which on the expression plane consist of phonological features (kenemes) and on the content plane of semantic features (pleremes)” (Bussmann, 1996: 191). In Tagmemics, ‘tagmeme’ is “the correlate of a grammatical function and the class of items which can perform it” (NSOED).

‘plereme’ as used in Componential Analysis and in Glossematics¹.

In addition to being used as nouns denoting units of structure, the majority of the -eme derivatives, as well as the original term ‘phoneme’, serve as bases for further suffixation to create other morphologically and semantically related terms to fulfil syntactic and semantic functions as can be seen from the following list:

ceneme:	cenemic, cenemics
plereme:	plerematic, plerematics
toneme:	tonemic, tonemically
tagmeme:	tagmemic, tagmemics, tagmemist
sememe:	sememic, sememically
morpheme:	morphemic, morphemics, morphemically
grapheme:	graphemic, graphemics, graphemically
phoneme:	phonemic, phonemics, phonemist, phonemicize, phonemicization

Formal and conceptual relationships exhibited by these terms have to be taken into consideration when translating the -eme derivatives into Arabic in order to preserve the conceptual structures they represent.

Manifestations of the theoretical entities denoted by the -eme terms can semantically be divided into concrete and abstract groups as follows:

1- Concrete group:

keneme or ceneme	in glossematic phonology, a minimal unit in the phonological system of a language, corresponding approximately to the phoneme in other systems
prosodeme	a distinctive prosodic feature such as stress and intonation

¹ In Componential Analysis, ‘plereme’ is ‘the minimal unit, a semantic feature’, e.g. [human] and in Glossematics it is ‘the minimal unit of meaningful expression’ (Asher, 1994/X: 5157).

toneme	a tone or set of tones functioning as a distinctive phoneme in a language
akueme	a minimal distinctive characteristic in the tone of voice of an individual speaker, such as timbre, rhythm, loudness, etc.
phoneme	a unit of sound in a language that cannot be analysed into smaller linear units and can distinguish one word from another
kineme	a meaningful unit of body movement or gesture made in non-verbal communication
morpheme	the smallest morphological unit of language that cannot be analysed into smaller units
lexeme	a lexical unit in the vocabulary of a language
grapheme	the minimal contrastive unit in the writing system of a language
moneme	for Martinet, the smallest unit of language consisting of content and phonetic form that cannot be broken down further into smaller meaningful units
chroneme	a distinctive unit of length in a speech sound
syntagmeme	in Tagmemics, a unit in a grammatical hierarchy viewed as a sequence of the tagmemes it consists of
phememe	for Bloomfield, the smallest and meaningless unit of linguistic signalling
glossememe	1- for Bloomfield, the smallest meaning-bearing unit in a language structure 2- in Glossematics, cover term for minimal linguistic units of <i>langue</i> , which on the expression plane consist of phonological features (kenemes), and on the content plane of semantic features (pleremes)
plereme	in Glossematics, the minimal unit of meaningful expression

behavioureme	in Tagmemics, the distinctive unit of any behaviour such as the sentence, which is regarded as the verbal behavioureme
chereme	the minimal contrastive unit in a sign language
stroneme	a unit of phonological stress, regarded as a kind of phoneme, i.e. stress phoneme
proxeme	a distinctive unit of distance, etc. between speakers
narreme	a unit in the literary analysis of narrations
soneme	an apparent phonemic unit in a dead language recorded only in writing

2- Abstract group:

taxeme	a single minimal feature of grammatical arrangement
tagmeme	1- for Bloomfield, the smallest meaningful unit of grammatical form 2- in Tagmemeics, the correlate of a grammatical function and the class of items which can perform it
syntaxeme	a unit of syntactic analysis, especially one which cannot be further analysed into components
sememe	the unit of meaning carried by a morpheme
semanteme	a unit of linguistic meaning understood as segmental rather than componential item
claseme	a distinctive semantic feature shared by lexical items belonging to different semantic fields, such as animate/inanimate; adult/child.
plereme	in componential analysis, the minimal unit of meaningful expression
grameme	an older term for tagmeme

The concrete manifestations are physical entities such as a sound, tone, gesture, letter, simple lexical item, or a string of lexical items, while the abstract

manifestations are either grammatical or semantic relationships or features. In each case, a single entity is denoted by each of the above listed items.

Following this analytical view of the origin, linguistic nature and technical employment of this suffix in English, let us see how Arabic normally expresses the concept of 'unit of structure'. In Arabic, the concept of 'unit' is normally expressed lexically by the word *wahdah*, which is equivalent to the English word 'unit'. Through lexical combination, *wahdah* is employed to create genitive constructions to denote different types of unit such as *wahdah naqdiyyah* (monetary unit), *wahdah 'adadiyyah* (numerical unit), *wahdah tarkiibiyyah* (construction unit), *wahdah qiyaasiyyah* (measurement unit), etc.

In transferring the modern linguistic concepts expressed in English by the -eme derivatives, Arab terminographers and linguists give different translation equivalents, reflecting diversity in interpreting some of the original terms and variation in the use of translation technique. A quick survey of the translation equivalents given by Arab terminographers (cf. Table no. 4.2.1) reveals that a number of factors seem to have determined the translations given to the English terms ending in -eme. These factors include (a) differences between linguists in using some terms such as 'glosseme' and 'morpheme', (b) the difficulty to identify the precise meanings of some terms due mainly to their intricate technical use and/or morpho-etymological background such as 'tagmeme', 'glosseme', 'taxeme', (c) the lack of one-word equivalents in Arabic to express the above English concepts, (d) the employment of different translation techniques (to be elaborated on later), (e) the lack of consistency, (f) the difficulty to combine denotative precision and formal concision simultaneously and (g) the psychological influence of the formal characteristics of the English terms, which is manifest in the use of direct borrowings when translation is possible and in the unjustifiable resort to hybrid terms such as *ṣarfīm* for 'morpheme', *ḥarkiīm* for 'kineme', *ṣawtiīm* for 'phoneme' and *ḥarfiīm* for 'grapheme' (cf. al-Khulii, 1982). As can be seen from the following comparison between the translation equivalents given by five Arab terminographers, different translation techniques have been used by the same or different terminographer

producing formally and semantically different translation equivalents. The translation techniques include transference (or direct borrowing), free translation, literal translation, paraphrasing, hybrid creation, employment of the Arabic suffix *-iyyah* and the dropping of the suffix *-eme*.

Table no. (4.2.1)

SL Terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990	Mubaarak 1995
Akueme	-	-	-	<i>akwiim</i>	-
Behaviour- eme	-	-	-	-	-
Ceneme	-	-	<i>siniim</i>	<i>siniim</i>	-
Chereme	-	-	-	<i>imaa'ah</i>	-
Chroneme	<i>kruniim</i> + <i>funiim kammii</i>	<i>al-kruniim</i>	<i>maddah</i> + <i>kruniim</i>	<i>kruniim</i>	<i>waḥdah</i> <i>kammiyyah</i>
Classeme	-	-	-	<i>ṣinf dilaalii</i>	<i>majmuu'at al-</i> <i>waḥdaat al-</i> <i>dilaaliyyah</i>
Glosseme	<i>ghluusiim</i> + <i>murfiim</i>	<i>al-ghluusiim</i>	<i>Kluusiim</i>	<i>ghluusiim</i>	<i>'asghar shakl</i> <i>lughawii</i>
Grameme	-	-	<i>waḥdah</i> <i>naḥwiyyah</i>	<i>qaalab</i>	<i>'asghar waḥdah</i> <i>ṣarfiyyah</i> + <i>qaalab</i>
Grapheme	<i>ghraafiim</i> + <i>ḥarf mujarrad</i> + <i>ḥarfiim</i>	<i>al-graafiim</i>	<i>ḥarf khattii</i>	<i>ghraafiim</i>	<i>ḥarf mujarrad</i> + <i>'asghar waḥdah</i> <i>khattiyyah</i>
Keneme	-	-	-	<i>kalimah</i> <i>waziifiyyah</i>	-
Kineme	<i>kiniim</i> + <i>ḥarakah</i> <i>mujarradah</i> + <i>ḥarkiim</i>	-	<i>waḥdat al-</i> <i>'ishaarah al-</i> <i>jasadiyyah</i> + <i>waḥdah</i> <i>'imaa'iyyah</i> + <i>al-ḥarakah</i>	<i>kayniim</i>	<i>ḥarakah</i> <i>mujarradah</i>
Lexeme	<i>liksiim</i> + <i>mufradah</i> <i>mujarradah</i>	<i>al-mufradah</i>	<i>mufradah</i> <i>mutamakkinah</i>	<i>liksiim</i>	<i>mufradah</i> <i>mujarradah</i>
Moneme	<i>murfiim</i>	<i>al-muniim</i>	<i>'unṣur daall</i> + <i>muniim</i>	<i>muniim</i>	<i>waḥdah</i> <i>lughawiyyah</i> <i>sughraa</i>
Morpheme	<i>murfiim</i> + <i>murfiimiyyah</i> + <i>ṣarfiyyah</i> + <i>ṣarfiim</i>	<i>al-murfiim</i>	<i>'unṣur daall</i> + <i>daallah</i> <i>naḥwiyyah</i>	<i>murfiim</i>	<i>waḥdah</i> <i>ṣarfiyyah</i> <i>mujarradah</i>
Narreme	-	-	-	-	-
Phoneme	<i>funiim</i> + <i>fuuniimiyyah</i> + <i>ṣawtiim</i> + <i>ṣawt</i>	<i>al-funiim</i>	<i>waḥdah</i> <i>ṣawtiyyah</i> + <i>ḥarf sawtii</i>	<i>funiim</i>	<i>waḥdah</i> <i>ṣawtiyyah</i> + <i>ḥarf</i>

	<i>mujarrad</i>				
Plereme	<i>mukawwin dilaalii + mushtarak dilaalii</i>	-	<i>mushtarak dilaalii + bliriim</i>	<i>bliriim</i>	<i>mukawwin dilaalii + mushtarak dilaalii</i>
Prosodeme	<i>funiim fawqit'ii</i>	<i>al-wahdah al-sawtiyyah al-taṭriiziyyah</i>	<i>wahdah nabriyyah</i>	<i>wahdah taṭriiziyyah</i>	<i>wahdah sawtiyyah fawqit'iyyah</i>
Proxeme	-	-	-	-	-
Semanteme	<i>simantiim + wahdat al-dilaalah</i>	<i>al-simantiim</i>	<i>daall maahiyyah + daalla 'ifraadiyyah + ma'naa al-mufradah</i>	<i>simantiim</i>	<i>wahdah dilaaliyyah</i>
Sememe	<i>simiim + al-wahdah al-mujarradah li-ddilaalah</i>	<i>al-simiim</i>	<i>wahdah dilaaliyyah + ma'naa murakkab</i>	<i>simiim</i>	<i>madluul + wadah mujarradah li-ddilaalah</i>
Soneme	-	-	-	-	-
Stroneme	-	-	-	-	-
Syntagmeme	-	-	<i>wahdah binaa'iyyah</i>	<i>nazm qaalibii</i>	-
Syntaxeme	-	-	-	-	-
Tagmeme	<i>qaalab</i>	<i>al-tagmiim</i>	<i>takmiim</i>	<i>qaalab</i>	<i>qaalab + mithaal</i>
Taxeme	<i>taksiim + simah naḥwiyyah</i>	<i>al-malmaḥ al-nazmii</i>	<i>wahdah tarkiibiyyah</i>	<i>ma'lam naḥwii</i>	<i>simah naḥwiyyah</i>
Toneme	<i>tuniim + funiim nagharii</i>	<i>al-wahdah al-naghariiyyah</i>	<i>wahdah naghariiyyah</i>	<i>mangham</i>	<i>wahdah naghariiyyah</i>

Let us now consider the adequacy of the above translation equivalents. Direct borrowing is normally the translator's final resort when all other translation techniques fail unless the SL term enjoys an uncompromisable international status or is an eponym. This is because direct borrowings are opaque and create breaks in the morphological and conceptual associations between the related terms of the same conceptual system. Consider, for example, the translation equivalents given by al-B'albakii (1990) to the set of terms used in Glossematics: glosseme (*ghlusiim*), ceneme (*siniim*), plereme (*bliriim*), prosodeme (*wahdah taṭriiziyyah*) and morpheme (*murfiim*). Taking into consideration the semantic function of the suffix -eme, only the Arabic equivalent given to 'prosodeme', *wahdah taṭriiziyyah*, is semantically transparent in Arabic. The direct borrowings given to 'glosseme', 'ceneme', 'plereme' and 'morpheme' formally have no relationship with the Arabic equivalent given to 'prosodeme', therefore, conceptually they are not indicative of any association with *wahdah taṭriiziyyah*. In this case, conceptual association can only

be maintained through the presupposed knowledge of the intensions of these English terms. In addition to opacity and lack of conceptual transparency, and taking into consideration the structural diversity between Arabic and English, direct borrowings from English are not always easily accommodated by the Arabic morphological and phonological systems and, therefore, may not be accepted by the users of Arabic, especially when alternative Arabic terms are proposed by other translators or terminographers. The terms *muṣarrif*, '*ajamah*' and *ṣiitah* coined by Ali (1993) for 'morpheme', 'lexeme' and 'phoneme' respectively, for example, are expected to be more acceptable than the direct borrowings *murfiim*, *liksiim* and *funiim*. The reason for this is that *muṣarrif* is derived from the same lexical morpheme (*ṣ-r-f*) from which the Arabic linguistic term *al-ṣarf* (morphology) is derived (Ali, 1993: 11). Meanwhile, *muṣarrif* is functionally transparent because its underlying pattern, *MUFA'IL*, denotes the active participle, that is to say, the agent which causes change in the form of the word, and extensionally this is what the 'morpheme' actually does. The term '*ajamah*' in Arabic means 'a kernel' of a date or raisin ('Aniis et al, 1987: *al-ʿujaam/al-ʿajam*) and is metaphorically employed to designate the concept denoted in English by 'lexeme' because lexemes of any language are the kernels of its lexicon. Morphologically, '*ajamah*' also maintains formal and derivational relationships with the conceptually related terms of *muʿjam* (lexicon) and *muʿjamii* (lexical) (Ali, 1993: 11). The term *ṣiitah* is also conceptually indicative because its underlying pattern *FI'LAH* either denotes the manner of doing what is expressed by the verb, i.e. the noun of kind (lit. '*ism al-hay'ah*' or *al-naw'*) (Wright, 1859/I: 123) or a small piece of any thing (*Ibid*: 175). It is also derived from the same lexical morpheme (*ṣ-w-t*) from which *ṣawt* (phone) and *ṣaa'it* (vowel) are derived.

Paraphrasal equivalents such as *wahdat al-ʿishaarah al-jasadiyyah* for 'kineme' (cf. ALECSO, 1989), '*asghar wahdah ṣarfiyyah*' for 'morpheme', '*asghar wahdah kitaabiyyah*' for 'grapheme', '*wahdah lughawiyyah ṣughraa*' for 'moneme', '*asghar shakl lughawii*' for 'glosseme' and *majmu'at al-wahdaat al-dilaaliyyah* for 'claseme' (cf. Mubaarak, 1995) are lengthy expressions as they contain somehow redundant elements such as *al-jasadiyyah*, '*asghar*' and *ṣughraa* respectively.

Consequently, with time, these paraphrasal equivalents either get shortened or replaced because they do not comply with the terminological need for concision and speedy communication. Another disadvantage related to these paraphrasal equivalents is that they are not easily amenable to further derivation and, therefore, derivative concepts can only be represented through compounding such as *'ilm wahdaat al-'ishaarah al-jasadiyyah* for 'kinemics'!

Hybrid equivalents such as *harfiim* for 'grapheme', *sarfiim* for 'morpheme' and *sawtiim* for 'phoneme' are based on the direct borrowing of the suffix -eme, which is employed in Arabic to produce similar terms to those formed by the same suffix in English. This method of term creation does not normally pass the test of time due to the basic fact that it is not one of the natural methods of word-formation in Arabic. Borrowing derivational suffixes can succeed only when the two languages involved have similar word-formation devices such as affixation in English and French. Naturally acceptable formations can only be produced through natural methods of word-formation because languages are just like animates, their bodies do not easily accept alien parts.

Translation equivalents created through free translation such as *sinf dilaalii* for 'claseme' (cf. al-B'albakii, 1990), *qaalab* for 'tagmeme' (cf. al-Khuulii, 1982 and al-B'albakii, 1990) and *harf* for 'phoneme' (cf. Mubaarak, 1995) are denotatively imprecise because they neither correspond intensionally nor extensionally to their supposedly related English terms. In English 'claseme', for example, is used to describe

"the relatively abstract semantic features shared by lexical items belonging to different semantic fields, e.g. animate/inanimate, adult/child" (Crystal, 1997: 62).

In other words, 'claseme' refers to any single semantic feature that makes difference in determining the class of an entity, while *sinf dilaalii* refers to the class itself not to the feature that distinguishes it. If 'claseme' is translated as *muṣannif*, for example, the translation will be plausible because through its underlying pattern, *MUFA'IL*,

muṣannif denotes the agent (in this case the semantic feature) that classifies or distinguishes a class of entities from another. *Qaalab* is given as a translation equivalent to both 'tagmeme' and 'episememe' (cf. al-Khuulii, 1982, ALECSO, 1989 and al-B'albakii, 1990), while, according to Bloomfield (1933: 166), a tagmeme is the smallest meaningful unit of grammar, i.e. a unit of grammatical form, and 'episememe' is the grammatical meaning of a tagmeme. Finally, to translate 'phoneme' as *ḥarf* is conceptually misleading because the former denotes 'a distinctive unit of phonological structure' while the latter denotes 'a graphic representation of a human speech sound'.

Employment of the Arabic suffix *-iyyah* to produce terms such as *ṣarfīyyah*, given by al-Khuulii (1982) to 'morpheme', is also suggested by Fehrii (1983: 142), who considers the Arabic suffix *-iyyah* as equivalent to the English suffix *-eme* and can produce equivalent terms such as *ṣarfīyyah*, for 'morpheme', *ṣawtiyyah* for 'phoneme' and *mu'jamiyyah* for 'lexeme'. These proposed Arabic equivalents are denotatively inaccurate because in Arabic they either denote the feminine form of the adjective or a state or condition. In the case of denoting the feminine form of the adjective, *-iyyah* consists of two suffixes: the adjective forming *yaa' al-nisbah* (relative *yaa'*), which is derivational, and the feminine terminal *taa'*, which is inflectional. In this case, the proposed Arabic equivalents can have negatives such as *ghayr ṣarfīyyah*, *ghayr ṣawtiyyah* and *ghayr mu'jamiyyah*. In the case of denoting a state or condition, *-iyyah* will be that of *al-maṣḍar al-ṣinaa'ii* and, therefore, the terms will refer to the state or condition of being *ṣarfii* (morphological), *ṣawtii* (phonological or phonetic) and *mu'jamii* (lexical), which corresponds to the denotative function of the English suffixes of *-ity* and *-ness*.

The translation equivalents created through literal translation such as *al-waḥdah al-ṣarfīyyah* for 'morpheme', *al-waḥdah al-naghmiyyah* for 'toneme' (cf. Bakalla et al, 1983), *waḥdah ṣawtiyyah* for 'phoneme', *waḥdah dilaaliyyah* for 'semanteme' (cf. Mubaarak, 1995), *waḥdah nabriyyah* for 'prosodeme', *waḥdah tarkiibiyyah* for 'taxeme' and *waḥdah 'iymaa'iyyah* for 'kineme' (cf. ALECSO,

1989) are semantically precise though formally not very concise. These translation equivalents are based on the fact that since each of the translated English terms consists of two linguistic elements: the base and the suffix -eme, and because -eme has a lexical not functional denotation, i.e. unit, and because Arabic does not have an equivalent suffix, then -eme is translated by an equivalent lexical item, i.e. *wahdah*. Although employment of the term *wahdah* through literal translation is semantically very adequate, formally it is problematic. More will be said on this point later.

Finally, the translation equivalents which do not take the suffix -eme into consideration such as *iymaa'ah* for 'chroneme', *qaalab* for 'grameme' (cf. al-B'albakii, 1990), *maddah* for 'chroneme' (cf. ALECSO, 1989) and *mithaal* for 'tagmeme' (cf. Mubaarak, 1995) are semantically inaccurate because the concepts they refer to do not include the semantic component referred to by the suffix -eme in the English terms, i.e. 'unit of'.

Based on the above critical review, none of the above quoted Arab terminographers has given consistent translation equivalents, neither semantically nor formally. But is the case as hopeless as it seems to be? The answer is definitely 'no'. The literal translation technique can be employed consistently to produce semantically and formally consistent Arabic translation equivalents for all the English terms formed by the suffix -eme. This technique consists in the employment of the Arabic term *wahdah* to render the -eme derivatives consistently as follows:

ceneme	<i>wahdah sawtiyyah</i>
prosodeme	<i>wahdah nabriyyah</i>
toneme	<i>wahdah naghamiyyah</i>
akueme	<i>wahdah tanghiimiyyah</i>
morpheme	<i>wahdah sarfiyyah</i>
lexeme	<i>wahdah mu'jamiyyah</i>
kineme	<i>wahdah 'iymaa'iyah</i> (in body language)

chereme	<i>wahdah 'iyshaariyyah</i> (in sign language)
grapheme	<i>wahdah khattiyyah</i>
moneme	<i>wahdah sarfiyyah</i>
narreme	<i>wahdah qasaṣiyyah</i>
chroneme	<i>wahdah maddiyyah</i>
syntagmeme	<i>wahdah nasqiyyah</i>
phememe	<i>wahdah lughawiyyah</i>
plereme	<i>wahdah dilaaliyyah</i> (in Componential Analysis) <i>wahdah ta'biiriyyah</i> (in Glossemstics)
phoneme	<i>wahdah sawtiyyah</i>
proxeme	<i>wahdah taqaarubiyyah</i>
behavioureme	<i>wahdah sluukiyyah</i>
glosseme	<i>wahdah 'alaamiyyah</i> (Bloomfield) <i>wahdah nazmiyyah</i> (Hjlslev)
taxeme	<i>wahdah nahwiyyah</i>
tagmeme	<i>wahdah shakliyyah/binaa'iyyah</i> (Bloomfield) <i>wahdah qaalabiyyah</i> (Tagmemics)
syntaxeme	<i>wahdah tarkiibiyyah</i>
claseme	<i>wahdah tasniifiyyah</i>
sememe	<i>wahdah dilaaliyyah</i> (mu'jamiyyah)
semanteme	<i>wahdah dilaaliyyah</i>
soneme	<i>wahdah siyaatiyyah</i>
stroneme	<i>wahdah nabriyyah</i>
grameme	<i>wahdah shakliyyah/binaa'iyyah</i>

As already indicated these intensional (or literal) translation equivalents, though semantically and formally consistent, lack the property of concision exhibited by their English counterparts. In other words, the linguistic concepts expressed in English by one-word terms are expressed in Arabic by two-word equivalents. This disadvantage has problematic implications for the translation of English terms derived from some -eme derivatives such as: morphemic, morphemics; graphemic,

graphemics; phonemic, phonemics, phonemist, phonemicize, phonemicization; kinemics; etc. However, structural diversity between English and Arabic entails the acceptance of diversity in the method of expression allowed by each of the two languages. Accordingly, the above mentioned terms derived from some -eme derivatives are rendered into Arabic through the employment of suitable morphological or lexical devices as follows:

morphemic analysis	<i>tahliil al-wahdaat al-sarfiyyah</i> <i>al-tahliil hasab al-wahdaat al-sarfiyyah</i>
morphemics	<i>'ilm al-wahdaat al-sarfiyyah</i> <i>diraasat al-wahdaat al-sarfiyyah</i> <i>al-sarfiyaat</i>
graphemics	<i>'ilm al-wahdaat al-khattiyyah</i> <i>al-khattiyaat</i>
phonemist	<i>'aalim al-wahdaat al-sawtiyyah</i>
kinemics	<i>'ilm al-wahdaat al-'imaa'iyyah</i> <i>diraasat al-wahdaat al-'imaa'iyyah</i> <i>al-'imaa'iyaaat</i>

The term 'phonemicization' does exhibit a real challenge to the translator in respect of concision in Arabic. The problem here is related to the translation of the English suffix -ization, which forms nouns of action from verbs in -ize or by analogy where no verb exists (NSOED). In linguistics, 'phonemicization' has two meanings: (a) the process or result of classifying, analysing or describing in terms of phonemes, and (b) the process or result of changing from allophonic to phonemic status (*Ibid*). In Arabic, three equivalents are needed for sense (a):

al-tasniif hasab al-wahdaat al-sawtiyyah
al-tahliil 'ilaa wahdaat sawtiyyah
al-wasf hasab al-wahdaat al-sawtiyyah

and two equivalents for sense (b), according to whether the underlying verb is used transitively or intransitively:

al-tahawiil 'ilaa wahdaat sawtiyyah

al-tahawwul 'ilaa wahdaat sawtiyyah

Thus, terminologically, the literal translation of 'phonemicization' has two implications: semantic variation and formal length. In translating linguistic material, the problem of variation in meaning can be solved contextually, but in terminological work and terminography all variant senses have to be represented. Formal length, or lack of concision, represents a real terminological problem because the Arabic equivalents have turned out to be long strings of words.

A relatively, but not absolutely, practical alternative is the employment of some morphological patterns in translating -eme derivative to produce extensional translation equivalents that denote individuality and represent, more or less, the actual functions or nature of the entities referred to by the English terms formed by the suffix -eme. On the analogy of the translation equivalent *muṣarrif* given by Ali (1993) to 'morpheme', the pattern *MUFA'ILAH*, which denotes the feminine form of the active participle, can be employed to translate some -eme terms as follows:

moneme	<i>muṣarrifah</i> (that which changes word forms)
chroneme	<i>muṣawwīṭah</i> (that which changes the length of a speech sound)
classememe	<i>muṣannifah</i> (that which decides or changes the class of an entity)
syntaxeme	<i>murakkibah</i> (that which constructs a structure)
tagmeme	<i>mushakkilah</i> or <i>muqawwibah</i> (that which forms or moulds)

Other patterns can relatively be utilised to translate some of the English terms ending in -eme as follows:

FU'AYLAH : (denoting the feminine form of the diminutive)

toneme	<i>nughaymah</i> (a small single tone compared with a bigger one)
kineme	<i>uyaymah</i> (a small single gesture compared with a bigger gesture)
syntagmeme	<i>nusayqah</i> (a small single syntagm compared with a bigger syntagm)

TAF'IILAH: (denoting the process or result of a single action)

prosodeme	<i>tanbiirah</i> (the process or result of a single act of stressing or pitch raising)
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FAA'ILAH: (denoting the feminine form of the active participle)

plermeme	<i>daallah</i> (that which signifies)
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FI'LAH: (denoting a small piece or portion of any thing)

phoneme	<i>siitah</i> (a single portion of sound)
ceneme	<i>siitah</i> (a single portion of sound)

MAF'UUL: (denoting the passive participle)

semanteme	<i>madluul</i> ('aam)
sememe	<i>madluul</i> (mu'jamii)

Finally, the term 'lexeme', as already pointed out, is translated metaphorically by Ali (1993) as '*ajamah* whose underlying pattern is *FA'ALAH*, the denotation of which includes 'individuality'. It is worth mentioning here that the above suggested

extensional Arabic equivalents do not denote the concept of ‘unit of structure’, but extensionally denote the functions or nature of the entities denoted by the -eme derivatives. Formally, these Arabic equivalents are concise, with the exception of those given to ‘semanteme’ and ‘sememe’, and, therefore, amenable to further derivation. Morphologically and semantically related terms derived from the above extensionally translated -eme forms can also be concisely translated into Arabic as follows:

phonemic	<i>ṣiitii</i>
phonemics	<i>al-ṣiitiyaat/‘ilm al-ṣiitaat</i>
phonemicization	<i>al-taṣyiit/al-taṣayyut</i>
tagmemic	<i>mushakkilii/muqawlibii</i>
tagmemics	<i>‘ilm al-mushakkilaat</i> <i>muqawlibyaat/‘ilm al-muqawlibaat</i>
morphemic	<i>muṣarrifii</i>
morphemics	<i>muṣarrifiyaat/‘ilm al-muṣarrifaat</i>

Finally, the above extensional equivalents are formally more concise, but denotatively less precise than their literal translation counterparts.

4.3 -nym

Etymologically, and according to the NSOED, this suffix represents Greek *onuma* or *onoma*, meaning ‘name’; in later use in English this suffix is extracted from ‘homonym’ and ‘synonym’ to form nouns with the sense of ‘name’. According to Webster’s and the RHD, this lexical item is a ‘combining form’ meaning ‘name’ or ‘word’, and is spelt with a prefixed *o*, thus: -onym. McArthur (1992: 730) also lists it with *o*, but points out that

“because -onym begins with *o* (the commonest Greek thematic vowel,

as in *biography*), the base form [-onym] is sometimes taken to be -nym, an assumption reinforced by the initial *n* of the equivalent terms *nomen* in Latin and *name* in English. As a result, some recent technical terms have been formed on -nym: for example, *characternym* and *paronym*.”

In terms of form and type, the present study adopts the view taken by the NSOED, regarding this lexical item as a suffix spelt without *o*. In terms of meaning, as shall be pointed out below, this suffix is believed to have more specific senses than those given by the above mentioned dictionaries. It is worth mentioning also that although -nym has been used in English to form new words, especially in linguistics, since the nineteenth century, nevertheless it is not yet listed as a suffix in the OED.

In linguistics, the technical terms containing -nym as an ending are etymologically of three types: (i) adaptations from Greek, Latin and French, (ii) syntagmas created through suffixation and (iii) back-formations from existing English words. Terms of the first type include

antonym	(French <i>antonyme</i>)
eponym	(Greek <i>eponumos</i>)
homonym	(Latin <i>homonymum</i>)
paronym	(Greek <i>paronumon</i>)
pseudonym	(French <i>pseudonyme</i>)
synonym	(Latin <i>synonymum</i>)

Terms of the second type are divided morphologically into three pattern types as follows:

- | | |
|---------------------------|---|
| 1- Combining form + -nym: | acronym, allonym, cryptonym, heteronym,
homoionym, hyperonym, hyponym, meronym,
toponym |
| 2- Prefix + -nym: | anonym |

3- Full word + an epenthetic + -o- + -nym: aptronym¹

Finally, the third type includes 'metonym', which is a back-formation from metonymy.

According to their actual use in linguistics, the above technical terms are divided semantically into four groups, each denoting an intensionally and extensionally separate concept as follows:

1- A name of some nature:

allonym	(i) one of a number of variant forms of a name. (ii) a name assumed by an author which belongs to someone else.
anonym	a name which has been written backwards
aptronym	a name which matches or derives from a person's nature or occupation
cryptonym	a secret name
eponym	(i) the name of a geographical location, institution or invention based on the name of a person (ii) the name of a person after whom something is named
pseudonym	a fictitious name, especially one used by an author
toponym	a place name

2- A word contracting a formal or semantic relationship with another word or words:

antonym	one of two or more words with opposite meanings
heteronym	(i) one of two or more words which are identical in spelling, but different in sound and meaning

¹ According to McArthur (1992: 78), this term is an American English word coined in the twentieth century by Franklin P. Adams.

	(ii) a word in one language which is a translation of the designation in another language
homoionym	near synonym: one of two or more words which are similar in meaning but not synonyms
homonym	one of two or more words which are identical in sound or spelling but different in meaning
hyperonym	a superordinate term with reference to which the subordinate term; the hyponym, can be defined
hyponym	a subordinate term whose meaning implies or is included in that of a superordinate term
meronym	a word which stands for a part in a system or structure that constitutes a whole
metonym	a word denoting an attribute of an entity being used in place of the entity itself
paronym	(i) a word derived from the same base as another word (ii) a word formed from a word in another language with only a slight change
synonym	a word which has the same, or nearly the same, meaning as another word

3- A word coined in a special way:

acronym	a word formed by combining the initial letters of the principle words in a phrase
eponym	a word coined by adopting the name of a person to designate an invention, place or institution

4- A person after whom some thing is named:

eponym	the person whose name is used as a word to designate an invention, place or institution
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The above semantic classification of the entities denoted by the terms containing -nym as an ending reveals the following facts:

1- The suffix -nym denotes either (a) a name of some nature, (b) a word which has a formal or semantic relationship with another, (c) a word coined in a special way or (d) a person after whom something is named.

2- Some terms are polysemous in the same general sense such as

- | | |
|-----------|---|
| allonym | (i) one of a number of variant forms of a name.
(ii) a name assumed by an author which belongs to someone else. |
| heteronym | (i) one of two or more words which are identical in spelling, but different in sound and meaning
(ii) a word in one language which is a translation of the designation in another language |
| paronym | (i) a word derived from the same base as another word
(ii) a word formed from a word in another language with only a slight change |

3- Some terms are polysemous in the sense of referring to different concepts such as 'eponym', which refers to three things as follows:

- (i) A- a *name* of a geographical location, institution or invention based on the name of a person
B- a *name* of a person after whom something is named
- (ii) a *word* coined by adopting the name of a person to designate an invention, place or institution
- (iii) a *person* after whom something is named

In (i) 'eponym' denotes 'a name', in (ii) 'a word' and in (iii) 'a person'.

In addition to being used in referring to the above classified entities, the above technical terms are also employed to form morphologically and semantically related derivatives to fulfil grammatical and semantic functions as follows:

acronym	acronymic, acronymically, acronymize
antonym	antonymous, antonymy
cryptonym	cryptonymous
eponym	eponymic, eponymically, eponymist, eponymous, eponymy
homonym	homonymic, homonymous, homonymy
hyponym	hyponymy, co-hyponym, auto-hyponym
paronym	paronymous, paronymy
synonym	synonymic, synonymous, synonymy, synonymize
toponym	toponymic, toponymist, toponymy

Ideally, all these related derivatives have to be taken into consideration when translating the base terms in order to maintain these morphological and semantic relationships, which will in turn maintain consistency of conceptualization in the TL.

Before we discuss the translation equivalents suggested by five Arab terminographers for the above sets of terms let us explore how the concepts denoted by those terms are normally expressed in Arabic. The concept of 'a name of some nature' is normally expressed through compounding in which the term *ism* (name) is employed as a compound head modified by an adjectival or nominal term that specifies its nature, such as *ism wahmii* (fictitious or imaginary name), *ism 'alam* (proper name), *ism shakhṣii* (personal name) and *ism makaan* (place name).

The concept of 'a word of some kind of formal or semantic relationship with another word or words' is expressed in three ways:

1- Employment of a single term formed by a morphological pattern that denotes the active participle and reciprocity such as *MUFAA'IL* and *MUFAA'ILAH* as in *muraadif* and *muraadifah*, which express the semantic relationship of synonymy.

2- Compounding in which the compound head is formed by a morphological pattern that denotes the active participle and reciprocity, and is modified by an adjectival term to specify the nature of relationship between that word and other words such as *mumaathilah 'imlaa'iyyah*, which expresses the relationship of similarity in formal structure.

3- Employment of the term *kalimah* as a compound head modified by an adjectival term to specify the type of relationship holding between that word and another word or words such as *kalimah majaaziyyah*, which expresses the relationship of *majaaz* (metaphor or metonymy) and *kalimah muraadifah*, which expresses the relationship of *al-traaduf* (synonymy).

The concept of 'a word coined in a special way' is normally expressed through compounding in which the term *kalimah* is employed as a compound head modified by an adjectival term specifying the way in which that word is coined such as *kalimah mushtaqqah* (a derived word), *kalimah manhuutah* (a word created through blending), *kalimah mu'arrabah* (an arabicized or directly borrowed word) and *kalimah murakkabah* (a word produced through compounding), etc. In each of these cases the adjectival modifier is formed by a morphological pattern that denotes the passive participle such as *MUFA'ALAH* and *MAF'UULAH*.

Finally, although the phenomenon expressed by 'eponym' in the sense of 'a person after whom some thing is named' is not common in Arabic, the concept of 'some one after whom some one else is named' is referred to as *al-musammaa 'alayh* (lit. the named after).

Having considered the linguistic nature and technical employment of this suffix in English, and having signalled out the ways in which Arabic normally expresses the above concepts denoted by the linguistic terms ending in -nym, let us now discuss the translation equivalents given by five Arab terminographers, namely:

al-Khuulii (1982), Bakalla et al (1983), ALECSO (1989), al-B‘albakii (1990) and Mubaarak (1995).

1- The translation equivalents for the set of terms denoting ‘a name of some nature’:

Table no. (4.3.1)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Allonym	<i>mutaghayyir ismii</i>	-	-	<i>1-badiil ismii 2-ism muntahā</i>	<i>mutaghayyir ismii</i>
Anonym	-	-	-	<i>ism ma'kuus</i>	-
Cryptonym	-	-	-	<i>ism sirrii</i>	-
Apronym	-	-	-	<i>ism intibaaqii</i>	-
Eponym	<i>mansuub 'ilayh</i>	<i>al-musammaa</i>	<i>musammaa</i>	<i>musammaa 'alamii</i>	<i>mansuub 'ilayh</i>
Pseudonym	-	-	-	<i>ism musta'aar</i>	-
Toponym	-	-	<i>ism makaan</i>	-	-

Most of the terms of this set are not included by most of the above terminographers, and some others are only included by one terminographer. Although ‘eponym’ is included by the five terminographers, it is not identified as ‘a name of some nature’ by any of them. The Arabic term *musammaa* used by Bakalla et al (1983), ALECSO (1989) and al-B‘albakii (1990) denotes the thing named, but not the name. This follows from the fact that *musammaa* is formed by the morphological pattern *MUFA‘AL*, which denotes the passive participle. With the exception of ‘eponym’ and ‘allonym’ in the sense of “one of a number of variant forms of a name” (Hartmann and Stork, 1972: 10), all terms included in al-B‘albakii (1990) are identified as denoting ‘a name of some nature’ and -nym in them is translated as *ism*, which is denotatively precise and formally consistent. *Badiil ismii* given to ‘allonym’ in the sense of ‘a variant form of a name’ is semantically loose because it denotes

more a type of *badiil* than a type of name. The same also applies to *mutaghayyir ismii* given by al-Khuulii (1982) and Mubaarak (1995). In order to maintain formal and semantic consistency in the Arabic equivalents, ‘allonym’ in the above sense is better translated as *ism badiil* than *badiil ismii* or *mutaghayyir ismii*. The other sense of “a name assumed by an author which belongs to someone else” (Crystal, 1992: 14) denoted by ‘allonym’ is only identified by al-B‘albakii (1990) who translates the term as *ism muntaḥal*, which is also denotatively precise. The translation equivalents *ism ma‘kuus*, *ism sirrii* and *ism musta‘aar* given by al-B‘albakii (1990) for ‘anonym’, ‘cryptonym’ and ‘pseudonym’ respectively are also denotatively precise. His translation of ‘apronym’ as *ism intibaaqii* is semantically loose because *intibaaqii* implies the habitual repetition of the action of *intibaaq* (congruity or correspondence), while intensionally this is not part of the meaning of ‘apronym’, which is defined in English as “a name that matches its owner’s occupation or character” (McArthur, 1992: 78). Accordingly, ‘apronym’ can be translated as *ism muntabiq* or *ism mutaabiq*, both of which denote ‘a name that matches its owner in some way’. *Muntabiq* is formed by the pattern *MUNFA‘IL*, which denotes the reflexive active participle and is employed attributively, and *mutaabiq* is formed by *MUFAA‘IL*, which denotes the reciprocal active participle and is also employed attributively. Finally, *ism makaan* given by ALECSO (1989) for ‘toponym’ is denotatively precise and formally consistent.

2- The translation equivalents for the set of terms denoting ‘a word with formal or semantic relationship with another word or words’:

Table no. (4.3.2)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Antonym	<i>munaaqidah</i> + <i>naqiidah</i>	<i>al-did</i>	<i>mudaad</i>	<i>munaaqid</i> + <i>munaaqidah</i>	-
Heteronym	<i>mukhaalifah</i> <i>sawtiyyah</i>	1- <i>al-iqtiraad</i> bi <i>al-tarjamah</i> 2- <i>al-mushtarak</i>	<i>mutajaanis</i>	<i>mughaayir lafzii</i>	<i>mushaarik</i> <i>kitaabii</i> + <i>mukhaalif sawtii</i>

		<i>al-kitaabii</i>			
Homoionym	<i>shibh muraadif</i> + <i>shibh mutaraadif</i>	-	<i>shibh taraaduf</i>	<i>shibh muraadif</i>	<i>shibh muraadif</i>
Homonym	<i>mushtarak lafzii</i> + <i>mujaanisah lafziyyah</i>	<i>al-mushtarak al-lafzii</i>	<i>mushtarak lafzii</i>	<i>mujaanis lafzii</i>	<i>mujaanis lafzii</i> <i>mushtarak lafzii</i>
Hyperonym	-	-	-	-	<i>ism shaamil</i>
Hyponym	<i>kalimah mundaawiyah</i> + <i>kalimah mashmuulah</i>	-	<i>naw' + fard al-jins</i>	<i>kalimah mundarijah</i>	<i>kalimah mundaawiyah</i>
Meronym	-	-	-	-	-
Metonym	<i>kalimah kinaayah</i>	-	-	-	<i>kalimah kinaayah</i>
Paronym	<i>mushtarak al-jidhr</i>	<i>mushtarak al-jidhr</i>	<i>mushtarak al-jidhr</i>	<i>mushtarak al-jidhr</i>	<i>mushtarak al-jidhr</i>
Synonym	<i>muraadif</i> + <i>mutaraadif</i>	<i>al-muraadif</i>	<i>muraadif</i> + <i>mutaraadif</i>	<i>muraadif</i> + <i>muraadifah</i>	<i>muraadif</i>

Although ‘heteronym’ and ‘paronym’ are polysemous, the above table shows that only ‘heteronym’ is identified by Bakalla et al (1983) as having two meanings. ‘Meronym’ is not included at all by any of the above terminographers. A cursory view of the above translation equivalents reveals that the Arab terminographers make use of the above mentioned three ways of expressing the concept of ‘a word of some kind of formal or semantic relationship with another’. In what follows, and for practical reasons, we shall discuss each set of the above translation equivalents given to each of the above English terms individually.

The translation equivalent *al-didd* given by Bakalla et al (1983) for ‘antonym’ is semantically misleading because its plural form *'addaad* is employed technically in Arabic linguistics to refer to those words each of which has two opposite meanings such as *al-jawn*, which means both ‘black’ and ‘white’ ('Aniis et al, 1987: *al-didd*) and *didd* itself, which means both *al-mukhaalif* (lit. the different) and *al-naadiir* (lit. the equivalent) (al-Munjid, 1969: *didd*). The semantic relationship here is one

between two opposite meanings of *one word* and, therefore, it is not a type of sense-relation¹, while in English an antonym is a word of opposite meaning to another word and the relationship between the *two words* is a type of sense-relation, i.e., antonymy². In Arabic, the relationship between two opposite things is referred to as *al-tadaad*, such as the relationship between the words 'present' and 'absent'; 'alive' and 'dead'; 'married' and 'unmarried'; etc., each pair of which is referred to in Arabic as *mutadaaddaan*. Therefore, *mudaad* given by ALECSO (1989) is denotatively adequate as it stands for *al-lafz al-mudaad*, the feminine form of which can be employed to stand for *al-kalimah al-mudaaddah*. The translation equivalents *munaaqidah*, *naqiidah* (cf. al-Khuulii, 1982) and *al-munaaqid* (cf. al-B'albakii, 1990) are denotatively inaccurate and misleading because in Arabic, especially in logic, *al-tanaaqud* is a relationship between two contradictory things being referred to as present in one place or thing at the same time such as *life* which contradicts *death*, or two contradictory qualities being ascribed to one thing at the same time such as 'alive' and 'dead' in the sentence: *He is alive and dead*. It follows that *al-mutanaaqidaan* are the two things or qualities that contradict or reverse each other when spoken of as present at the same time ('Aniis et al, 1987: *al-tanaaqud* and *al-mutanaaqidaan*). *Al-tadaad*, on the other hand, is a relationship between two separate opposite things or qualities such as the relationship between the two words of 'married' and 'unmarried'. When referred to separately, each is considered as an antonym (*mudaaddah*) of the other, but when ascribed to one person at the same time, each is considered as *munaaqidah* (contradictory) of the other.

In translating 'heteronym' in the sense related to 'homonym' and 'homograph', the Arab terminographers interpret it differently and give different

¹ On *al-'addaad* in Arabic linguistics see al-Suyuutii (1987/1: 387-402 and Ali (1993: 359-361).

² It is worth pointing out that in English the term 'antonymy' is controversial as it is interpreted in two different senses. In the first sense "linguists identify three types of antonymy: (1) *Gradable antonyms*, which operate on a continuum: (very) big, (very) small. [...] (2) *Complementary antonyms*, which express an either/or relationship: *dead* or *alive*, *male* or *female*. (3) *Converse or relational antonyms*, expressing reciprocity: *borrow* or *lend*, *buy* or *sell*, *wife* or *husband*" (McArthur, 1992: 73). In the second sense, "some linguists (e.g. the British linguist John Lyons [...]) have reserved the term for a particular type of oppositeness: graded antonyms are referred to as 'antonyms', the other type [...] [ungraded antonyms] being referred to as complementaries" (Crystal, 1997: 21). In the present study, 'antonymy' is interpreted in its first sense.

translations. Their differences can be seen in two ways: (1) difference in translating the combining form hetero- and (2) difference in the point of view adopted in relating the phenomenon expressed by this term to writing, pronunciation or meaning. Al-Khuulii (1982) and al-B'albaki (1990) interpret the combining form hetero- as denoting 'difference', expressed in their use of *mukhaalifah* and *mughaayir* respectively, and relate the phenomenon expressed by 'heteronym' to sound or pronunciation, reflected in their use of *sawtiyyah* and *lafzii* respectively. Bakalla et al (1983) relates the phenomenon expressed by 'heteronym' to writing, represented in his employment of *kitaabii*, and adopts the translation technique of modulation in translating the combining form as expressing similarity not difference, through the use of the term *al-mushtarak*. ALECSO (1989) also adopts modulation in translating the combining form as denoting similarity, reflected in his use of *mutajaanis*, but relates the phenomenon expressed by 'heteronym' to meaning, as indicated by the complementary prepositional phrase *fii al-ma'naa* (lit. in meaning). Mubaarak (1995) gives two translation equivalents *mushaarik kitaabii* and *mukhaalif sawtii*, thus representing two interpretations of the SL term. It should be mentioned here that the above differences between the Arab terminographers in translating 'heteronym' can be attributed to the differences in interpreting this term in English. In Hartmann and Stork (1972: 103), 'heteronym' is defined as

“one of two or more words which are identical in spelling, but different in sound and meaning, e.g. *bow* 'for shooting arrows', *bow* 'of a ship'”.

Crystal (1992: 171) regards heteronyms as

“words which display partial homonymy, differing in meaning, but identical in form in one medium only (speech or writing). *Threw* and *through* are heteronyms, identical in sound but not in spelling, as are *tear* (in clothing) and *tear* (from the eye), identical in spelling but not in sound”

To relate the above translation equivalents of 'heteronym' to these definitions, we can say that *mukhaalifah sawtiyyah* by al-Khuulii (1982) and *mughaayir lafzii* by al-

B'albakii (1990) are based on the same interpretation as that adopted by Crystal (1992) exemplified by *tear* (in clothing) and *tear* (from the eye), which are identical in spelling but different in sound. *Al-mushaarik al-kitaabii* by Bakalla et al (1983) and *mushtarak kitaabii* by Mubaarak (1995) are based on the same interpretation as that adopted by Hartmann and Stork (1972) exemplified by *bow* 'for shooting arrows' and *bow* 'of a ship', which are identical in spelling or writing but different in meaning and sound. The translation equivalent *mujaanis (fii al-ma'naa)* by ALECSO (1989) is not based on any of the above interpretations of 'heteronym' in English and is, in fact, an incorrect translation of the term because 'heteronym' can be *mutajaanisah* (similar) in spelling or sound, but not in meaning. Based on the above discussion, 'heteronym' can have three translation equivalents in Arabic: (1) *mukhaalifah lafziyyah* (identical in spelling but different in sound), (2) *mukhaalifah ma'nawiiyyah* (identical in spelling but different in meaning) and (3) *mumaathilah 'imlaa'iyyah* (identical in spelling but different in meaning and/or sound). In these suggested translation equivalents, the compound head is formed by the morphological pattern *MUFAA'ILAH*, which denotes both the active participle and reciprocity. The adjectival modifier in each of these equivalents specifies in what way the word is similar to or different from another word or words.

'Heteronym' in the sense of

"a word in one language which is a translation of the designation in another language" (NSOED)

is only identified by Bakalla et al (1983) and is translated as *al-iqtiraaḍ bi al-tarjamah* (lit. borrowing through translation). This translation is inaccurate because it denotes 'a type of process or method of translation', but not 'a type of word'. If paraphrased, the meaning of 'heteronym' in this sense will be 'a word in one language employed through translation to denote the same thing denoted by another word in another language'. In other words, the two words share the same meaning but belong to different languages. Based on this consideration, 'heteronym' in this sense should be translated either as *muraadifah tarjamiyyah* (lit. a translation

synonym), *muqaabilah tarjamiyyah* (lit. a translation counterpart) or *mumaathilah ma'nawiyyah* (lit. a word of similar or identical meaning). Here too, the compound head in each of these equivalents is formed by the pattern *MUFAA'ILAH*, which denotes the reciprocal active participle.

'Homoionym' or 'homoeonym' is translated as *shibh muraadif* in three of the above dictionaries and *shibh taraaduf* in ALECSO (1989). Al-Khuulii (1982) also gives *shibh mutaraadif* as a second translation. In this context, *shibh muraadif* is more precise than *shibh mutaraadif* because *mutaraadif*, formed by *MUTAFAA'IL*, describes the word as a synonym at a specific time. In other words, *mutaraadif* denotes the quality of a given state or condition of *taraaduf*, but not an intrinsic or permanent quality of *taraaduf* in the word, which *muraadif* denotes. The pattern *MUFAA'IL* underlying *muraadif* denotes both the reciprocal active participle and the permanent quality of the action expressed by the underlying verb. *Shibh taraaduf* given by ALECSO (1989) is imprecise because it denotes a state or condition of near synonymy, expressed through the *masdar* pattern *TAFAA'UL*, but not 'a word that expresses the relationship of near synonymy'.

In translating 'homonym', the Arab terminographers give two translation equivalents: (i) *mushtarak lafzii* (cf. al-Khuulii, 1982, Bakalla et al, 1983, ALECSO, 1989 and Mubaarak, 1995) and (ii) *mujaanisah* or *mujaanis lafzii* (cf. al-Khuulii, 1982 and al-B'albakii, 1990). Although *mushtarak lafzii* is generally an acceptable translation of 'homonym' in the sense of

"one of two or more words which are identical in sound, but different in meaning" (Hartmann and Stork, 1972: 105),

it is technically misleading because in Arabic linguistics the term *al-mushtarak al-lafzii* is used to refer to the word which has more than one meaning ('Aniis et al, 1987). In other words, in English 'homonyms' the relationship is between two words which are identical in form but different in meaning, but in Arabic *mushtarak* the

relationship is between two different meanings of the same word.¹ The other translation equivalent *mujaanisah* or *mujaanis lafzii* can also be misleading because in Arabic the term *al-jinaas* (loosely alliteration)² is associated with literary stylistic studies, especially in rhetoric, where it is employed to refer to one of the stylistic devices in which two words sharing all or some of their letters are employed to create special sound effects. Each of these words is referred to as *mujaanisah* and the relationship between the two as *jinaas*. If 'homonym' is translated as *mujaanisah* or *mujaanis*, 'homonymy' will consequently be rendered as *al-jinaas*, thus creating an overlap between the linguistic and stylistic concepts and causing misconceptualization. Based on the above discussion, 'homonym' would better be translated as *mumaathil* or *mumaathilah lafziyyah* and 'homonymy' as *al-tamaathul al-lafzii*.

'Hyperonym' is only included by Mubaarak (1995) who translates it as *ism shaamil*. This translation is denotatively precise in terms of rendering the suffix -nym as *ism*, but it is inadequate in respect of translating the combining form hyper-. In linguistic and logical semantics, 'hyperonym' is used to denote

"a superordinate term [...] with reference to which the subordinate term can be defined" (Crystal, 1997: 186)

or

"a word whose meaning is implied by another and in terms of which the other word can be defined (e.g. *building* in relation to *house* or *hotel*)" (NSOED).

Technically, the other word is referred to as 'hyponym' or 'subordinate'. In the above example, 'house' and 'hotel' are hyponyms, or more precisely co-hyponyms of 'building'. In other words, 'house' and 'hotel' denote two different types of building.

¹ On homonymy in English see Lyons (1977/l: 21-22) and Lyons (1995: 54-58), and on *al-mushtarak al-lafzii* in Arabic linguistics see al-Suyuutii (1987/l: 369-386) and Ali (1993: 349-358).

² *Al-jinaas* in Arabic is a wider concept than alliteration in English. The equivalent concept to alliteration in Arabic is *al-jinaas al-'istihlaalii*, which is a relationship between words that share a set of initial sounds or letters.

The relationship holding between a hyponym, such as 'house', and a hyperonym, such as 'building', is the sense-relation of hyponymy, or inclusion.¹ Pragmatically. Hyperonyms are entailed by their hyponyms, e.g., 'house' and 'hotel' entail 'building' and 'dog' entails 'animal' (Lyons, 1995: 125-126). In view of this semantic relationship between 'hyperonym' and 'hyponym', 'hyperonym' is construed as 'the word which is used as a name for a superordinate class of entities' and 'hyponym' as 'the word which is used as a name for a subordinate class of entities', or, in other words, the individuals that fall under the superordinate. In Arabic, the superordinate class is referred to as *al-jins* and the subordinate class as *al-naw'* (al-Jurjaanii, 1971: *al-jins* and *al-naw'* and 'Aniis et al, 1987: *al-jins*), hence, the word used as a name for a superordinate class is *ism al-jins* and the word used as a name for a subordinate class is *ism al-naw'*. Based on the above discussion, it is clear that *ism shaamil* (lit. comprehensive name) given by Mubaarak (1995) for 'hyperonym' is inadequate because the semantic component of 'the superordinate class' (*al-jins*) cannot be understood from *shaamil* as it is an adjectival term of a wide meaning of 'comprehensive'. Extensionally in Arabic, *ism shaamil* is a name or word that is comprehensive in some respect such as the name *Allaah* which includes all the noble qualities or meanings attributed to the creator and sustainer of the universe, and *al-fadiilah* (virtue), which includes wisdom, purity, and fairness. The semantically established and logically recognized hierarchical relationship between a superordinate and its subordinate(s) cannot be established between *ism shaamil* and the qualities or meanings it includes; therefore, to be intensionally and extensionally equivalent in Arabic, 'hyperonym' has to be translated as *ism al-jins*.

With respect to 'hyponym', only the two translation equivalents of *naw'* and *fard al-jins* given by ALECSO (1989), though loose, can be regarded as denoting the concept of 'subordinate'. Both are semantically loose because *naw'* denotes 'a class of subordinates', but not 'the word that is used to refer to a class or individual of subordinates', and, in the same way, *fard al-jins* denotes 'the individual that falls within the class of subordinates' but not 'the word that is employed to refer to each

¹ For further detail see Lyons (1977/I: 291-295).

of the individuals that fall under the superordinate'. The other translation equivalents *kalimah munda'wiyah* (cf. al-Khuulii, 1982 and Mubaarak, 1995), *kalimah mashmuulah* (cf. al-Khuulii, 1982) and *kalimah mundarijah* (cf. al-B'albaki, 1990) are also denotatively inadequate because none of them can be understood in Arabic as 'the word which is used as a name for a subordinate falling under a superordinate' despite the use of the modifiers *munda'wiyah*, *mashmuulah* and *mundarijah* (lit. included), which are apparently intended to represent the relationship of inclusion holding between hyponyms and hyperonyms. Although 'hyponym', like 'hyperonym', denotes a type of word, the use of *kalimah* (word) in the above translation equivalents is the main defect in these translations. This is because the semantic relationships expressed by 'hyperonym' and 'hyponym' are not between words in the sense of linguistic signs, as the relationships between homonyms and homographs, but between the referents for which these words are used as names. In other words, the relationship of homonymy between 'flour' and 'flower'; 'bank' (financial institution) and 'bank' (edge of a river); etc., is a formal relationship between each pair of these words as linguistic signs, but not between their referents as extralinguistic entities. In contrast, the relationship between 'dog' and 'animal'; 'house' and 'building'; etc., is not a formal relationship between each pair of these words, but a semantic relationship between each pair of the extralinguistic entities referred to by these words. The term *kalimah* can of course be used in Arabic to express the concepts referred to in English by 'hyperonym' and 'hyponym', but the translations will be lengthy ones, thus: *al-kalimah al-daalah 'alaa al-jins* for 'hyperonym' and *al-kalimah al-daalah 'alaa al-naw'* for 'hyponym'. For the sake of concision, the three-word phrase '*al-kalimah al-daalah 'alaa*' can be replaced by the single word *ism* to produce *ism al-jins* for 'hyperonym' and *ism al-naw'* for 'hyponym', thus maintaining denotative precision, as well as formal consistency between the two translation equivalents.

In translating 'metonym', al-Khuulii (1982) and Mubaarak (1995), the only two who include this term, use *kalimah kinaayah* explicitly rendering -nym as *kalimah*. This translation is denotatively precise as it extensionally stands for the same entity denoted by the English term, i.e. a word used metonymically.

'Paronym' is unanimously translated as *mushtarak al-jidhr* representing only one of the two senses of this term. In the other sense, 'paronym' means

"a word formed from a word in another language with only a slight change" (Crystal, 1997: 279)

or

"a word of one language which translates a word of another with only a difference of termination or other slight change" (OED).

Mushtarak al-jidhr, given for the first sense, is denotatively adequate, but, for the sake of formal consistency with other translation equivalents of some terms in this set, it would be more appropriate if it is rendered in the feminine form, thus: *mushaarikat al-jidhr* or *mumaathilat al-jidhr*. These two suggested translation equivalents maintain formal consistency with *mudāaddah*, *muraadifah tarjamiyyah* and *mumaathilah lafziyyah* suggested above for 'antonym', 'heteronym' and 'homonym' respectively. In the second sense, 'paronym' can be translated as *muhawwarah tarjamiyyah*, the underlying morphological pattern of which is MUFA'ALH, which denotes the feminine form of the passive participle, thus extensionally representing *al-kalimah al- muhawwarah* (the remodelled or modified word). *Tarjamiyyah* is an adjectival qualifier specifying the context of translation in which the denoted word is remodelled in the TL.

Finally, 'synonym' is translated as *muraadif* by the five Arab terminographers, with al-B'albakii (1990) also giving the feminine form *muraadifah*. Al-Khuulii (1982) and ALECSO (1989) also give, as a synonym, *mutaraadif*. *Muraadif*, and more formally appropriate *muraadifah*, is denotatively precise as it

extensionally represents the same type of word denoted by the English term ‘synonym’. *Mutaraadif*, in contrast, is less precise due to the same reasons given above for the inadequacy of *shibh mutaraadif* suggested by al-Khuulii (1982) for ‘homoionym’.

3- The translation equivalents for the set of terms denoting ‘a word coined in a special way’:

Table no. (4.3.3)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Acronym	<i>kalimah</i> <i>‘awaa’iliyyah</i>	<i>al-ramz</i> <i>al-</i> <i>ikhtiṣaarii</i>	<i>mukhtazal naḥtīi</i>	<i>muqtata’</i> <i>hijaa’ii</i>	<i>kalimah</i> <i>‘awaa’iliyyah</i> + <i>ramz</i> <i>ikhtiṣaarii</i>
Eponym	<i>mansuub</i> <i>‘ilayh</i>	<i>al-</i> <i>musammaa</i>	<i>musammaa</i>	<i>musammaa</i> <i>‘alamii</i>	<i>mansuub</i> <i>‘ilayh</i>

As the above table reveals, ‘acronym’ is given four translation equivalents: (i) *kalimah ‘awaa’iliyyah* (cf. al-Khuulii, 1982 and Mubaarak, 1995), (ii) *ramz ikhtiṣaarii* (cf. Bakalla et al, 1983 and Mubaarak, 1995), (iii) *mukhtazal naḥtīi* (cf. ALECSO, 1989) and (iv) *muqtata’ hijaa’ii* (cf. al-B‘albakii, 1990). In the first translation equivalent -nym is explicitly translated as *kalimah*, which is denotatively adequate, modified by *‘awaa’iliyyah* to refer to the method of taking the first letters of the words of the contracted expression. In the second translation equivalent -nym is rendered as *ramz* and is related to abbreviation (*ikhtiṣaar*) through the use of *ikhtiṣaarii*. Although linguistically acronyms and all words can be regarded as *rumuuz lughawiyyah* (linguistic symbols), this translation equivalent is misleading because (1) it highlights and gives more immediacy to the signalling function of *al-ramz* (symbolic representation) than to ‘the entity of the word which is formed in a special way’, and (2) being related to *ikhtiṣaar*, *ramz ikhtiṣaarii* can be misconceptualized as an abbreviation, which, according to some morphologists, is

formally different from an acronym as explained in the following definition of 'acronym'

"an acronym is a word coined by taking the initial letters of the words in a title or phrase and using them as a new word. [...] However, not every abbreviation counts as an acronym: to be an acronym the new word must not be pronounced as a series of letters, but as a word. Thus, if Value Added Tax is called /vi ei ti/, that is an abbreviation, but if it is called /vaet/, it has become an acronym". (Bauer, 1983: 237)

The third equivalent, *mukhtazal nahtii*, is imprecise and misleading because it does not indicate the way in which acronyms are formed, namely 'the taking of initial letters', and can be mistaken for a blend. The fourth translation, *muqtata' hijaa'ii*, is also imprecise because it does not denote 'a type of word', neither does it specify the way in which acronyms are formed. In Arabic, *muqtata' hijaa'ii* would denote 'any part of a word or expression that has been isolated or cut off', which is intensionally different from 'acronym' in English. To be rendered into Arabic, the concept of word in 'acronym' can either be expressed intensionally, through the employment of the term *kalimah* as in *kalimah 'awaa'iliyyah*, or extensionally, through the employment of a morphological pattern to denote the feminine passive participle, such as *MAF'UULAH* in *manhuutah 'awaa'iliyyah*.

Lastly, 'eponym', though included by the five terminographers, is not identified as denoting 'a word coined in a special way' by any of them. Instead, it is identified as 'something named' and translated as *al-musammaa* or just *musammaa* (cf. Bakalla et al, 1983 and ALECSO, 1989) or *musammaa 'alamii* (cf. Al-B'albakii, 1990).

4- The translation equivalents for the term denoting 'a person after whom something is named':

Table no. (4.3.4)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Eponym	<i>mansuub</i> <i>'ilayh</i>	<i>al-musammaa</i>	<i>mansuub</i> <i>'ilayh</i>	<i>musammaa</i> <i>bi'ismih</i>	<i>mansuub</i> <i>'ilayh</i>

This table shows that ‘eponym’ in this sense is identified by four out of five terminographers and two translation equivalents are given: *mansuub 'ilayh* (lit. attributed or related to) (cf. al-Khuulii, 1982, ALECSO, 1989 and Mubaarak, 1995) and *musammaa bi'ismih* (lit. one whose name is used as a name) (cf. al-B‘albakii, 1990). *Mansuub 'ilayh* is an imprecise translation because to say in Arabic *nasaba al-shay'a 'ilaa fulaan* means ‘*azaahu 'ilayh* (lit. he attributed it to him) (cf. 'Aniis et al, 1987: *nasaba*), but not ‘named it after him’, and subsequently, the passive participle *mansuub 'ilayh* means ‘one to whom something is attributed’, but not ‘one after whom something is named’. In Arabic linguistics, *al-nasab* or *al-nisbah* (attribution or relation) is realized through (1) the suffixation of *yaa' al-nasab* or *al-nisbah* (the relative or attributive *yaa'*), as in *haatimii* (the quality of being generous like *Haatim al-Taa'ii*), and (2) the genitive, such as *Jabal Taariq* (*Taariq's* mountain, i.e., Gibraltar). *Musammaa bi'ismih* is also loose because it does not necessarily mean ‘one after whom something is named’, but ‘one whose name is also used to name something else but not necessarily after him’. Although the phenomenon expressed by ‘eponym’ in this sense is not common in Arabic, the term *musammaa 'alayh* used for the concept of ‘some one after whom some one else is named’ can be analogically employed to refer to the above concept denoted in English by ‘eponym’.

Based on the above semantic classification of the entities denoted by the terms ending in -nym, and in view of the above critical discussion of the translation equivalents given by the above Arab terminographers, the following conclusions are made:

1-The suffix -nym in the set of terms denoting 'a name of some nature' can be translated consistently as *ism* in Arabic as follows:

allonym	1- <i>ism badiil</i> 2- <i>ism muntaḥal</i>
anonym	<i>ism ma'kuus</i>
apronym	<i>ism mutaabiḡ/muntaḡbiḡ</i>
cryptonym	<i>ism sirrii</i>
eponym	1- <i>ism 'alamii</i> 2- <i>ism mukhallad</i>
pseudonym	<i>ism musta'aar</i> <i>ism wahmii</i>
toponym	<i>ism makaan</i>

2- In the set of terms denoting 'a word of some kind of formal or semantic relationship with another word or words', -nym is translated in three different ways as follows:

a- -nym is translated extensionally through the employment of a certain morphological pattern in the following terms:

antonym	<i>mudaaddah</i>
heteronym	1- <i>mukhaalifah lafziyyah</i> <i>mukhaalifah ma'nawiyyah</i> <i>mumaathilah 'imlaa'iyyah</i> 2- <i>muraadifah tarjamiyyah</i> <i>muqaabilah tarjamiyyah</i>
homoionym	<i>shibh muraadifah</i>
homonym	<i>mumaathilah lafziyyah</i>
paronym	1- <i>mumaathilat/mushaarikat al-jidhr</i> 2- <i>muḥawwarah tarjamiyyah</i>

synonym *muraadifah*

b- -nym is translated functionally as *ism* in the following terms:

hyperonym	<i>ism al-jins</i>
hyponym	<i>ism al-naw‘</i>
meronym	<i>ism al-juz‘</i>

c- -nym is translated literally, or intensionally, as *kalimah* in the following term:

metonym *kalimah kinaayah*

3- In the set of terms denoting ‘a word coined in a special way’, -nym is either translated intensionally as *kalimah* such as

acronym	<i>kalimah ‘awaa’iliyyah</i>
eponym	<i>kalimah ‘alamiyyah</i>

or extensionally through the employment of a certain morphological pattern such as

acronym *manhuutah ‘awaa’iliyyah*

4- In the term denoting ‘a person after whom something is named’, -nym is also translated extensionally through the employment of a morphological pattern as follows:

eponym *musammaa ‘alayh*

Finally, the above suggested translation equivalents can be employed through derivation or compounding to form translation equivalents to represent morphologically and semantically related SL terms. The problem is that in some

cases both denotative precision and formal concision can be achieved in Arabic, but in some other cases only denotative precision can be achieved. Cases of the first type include:

acronymic	<i>kalimii 'awaa'ilii</i> or <i>manhuutii 'awaa'ilii</i> (from <i>kalimah 'awaa'iliyyah</i> and <i>manhuutah 'awaa'iliyyah</i> suggested for 'acronym' in the sense of 'a word coined in a special way')
antonymous	<i>mudaaddat al-ma'naa</i> or <i>mudaaddah</i> (from <i>mudaaddah</i> suggested for 'antonym')
antonymy	<i>al-tadaad</i> (from <i>mudaaddah</i> suggested for 'antonym')
cryptonymous	<i>sirrii al-'ism</i> (for the sense of 'one whose name is secret')
eponymic	(of or pertaining to eponyms) 1- <i>ismii 'alamii</i> (from <i>ism 'alamii</i> suggested for 'eponym' in the sense of 'a name of a geographical location, institution or invention based on the name of a person') 2- <i>ismii takhliidii</i> (from <i>ism mukhallad</i> suggested for 'eponym' in the sense of 'a name of a person after whom something is named') 3- <i>kalimii 'alamii</i> (from <i>kalimah 'alamiyyah</i> suggested for 'eponym' in the sense of 'a word coined in a special way')
eponymist	<i>al-musammaa 'alayh</i> (for the sense of 'a person who is an eponym')
eponymous	1- <i>mukhallad al-'ism</i> or <i>musammaa 'alayh</i> (for the sense of 'a person giving his name to something') 2- <i>musammaa 'alamii</i> (for the sense of 'a thing named after a particular person')

homonymous	<i>mumaathilat al-lafz</i> (from <i>mumaathilah lafziyyah</i> suggested for 'homonym')
homonymy	<i>al-tamaathul al-lafzii</i> (from <i>mumaathilah lafziyyah</i> suggested for 'homonym')
hyponymy	<i>al-'indiraaj (al-naw'ii)</i> (a functional translation of this concept in the sense of 'inclusion')
paronymous	1- <i>mumaathilat al-jidhr</i> (for the sense of 'the quality of being derived from the same root') 2- <i>muḥawwarah tarjamiyyah</i> (for the sense of 'the quality of being formed by partial translation from a foreign word')
paronymy	<i>al-tamaathul al-jidhrī</i> (from <i>mumaathilat al-jidhr</i> suggested for 'paronym' in the sense of 'a word derived from the same root')
synonymic	<i>taraadufii</i> (from <i>al-taraaduf</i> suggested for 'synonymy' from <i>muraadifah</i> suggested for 'synonym')
synonymous	<i>mutaraadifah/muraadifah/muraadifii</i> (from <i>muraadifah</i> suggested for 'synonym')
synonymy	1- <i>al-taraaduf</i> (for the sense of 'the semantic relationship between synonyms') 2- <i>al-mutaraadifiyyah</i> or <i>al-muraadifiyyah</i> (for the sense of 'the quality or fact of being synonymous') 4- <i>al-mutaraadifaat</i> (for the sense of 'the set of synonyms or synonyms collectively') 5- <i>al-muraadafah</i> (for the sense of 'use of synonyms or use of words as synonyms')
synonymize	<i>yuraadif</i> (for the sense of 'use synonyms')

Cases of the second type in the translation equivalents of which only denotative precision can be achieved include:

acronymic	<i>muta'alliq bil-kalimaat al-'awaa'iliyyah</i> <i>muta'alliq bil-manhuutaat al-'awaa'iliyyah</i>
acronymize	<i>yasuugh al-kalimaat al-'awaa'iliyyah</i> <i>yasuugh al-manhuutaat al-'awaa'iliyyah</i>
acronymization	<i>sawgh al-kalimaat/al-manhuutaat al-'awaa'iliyyah</i> (for the sense of process) <i>sawgh kalimii 'awaa'ilii</i> (for the sense of product) <i>sawgh nahtii 'awaa'ilii</i> (for the sense of product)
eponymy	1- (in the sense of 'eponymic nomenclature') a- <i>manzuumat al-'asmaa' al-'alamiyyah</i> b- <i>manzuumat al-'asmaa' al-mukhalladah</i> c- <i>manzuumat al-kalimaat al-'awaa'iliyyah</i> 2- (in the sense of 'the practice of explaining names of peoples, places, etc., by referring them to the name of a historical or mythical person') a- <i>ta'thiil al-'asmaa' al-'alamiyyah</i> b- <i>ta'thiil al-kalimaat al-'awaa'iliyyah</i>
homonymic	<i>muta'alliq bi-al-tamaathul al-lafzii</i>
co-hyponym	<i>ism al-naw' al-mushaarik</i>
auto-hyponym	<i>ism al-naw' al-dhaatii</i>
paronymy	<i>tahwiir tarjamii</i> or <i>sawgh tahwiirii tarjamii</i> (for the sense of 'the formation of a word by partial translation of a foreign word')
synonymize	<i>yu'abbir taraadufiyyan</i> (for the sense of 'to express the same meaning by different words')
toponymic	<i>muta'alliq bi-'ilm/diraasat 'asmaa' al-makaan</i> (for the sense of 'of or pertaining to toponymy')
toponymy	<i>'ilm/diraasat 'asmaa' al-makaan</i> (for the sense of 'the branch of knowledge that deals with place-names')

Chapter V

Translating the suffixes -graph, -graphy and -gram

5.1. -graph

Based on the NSOED, this suffix is from or after French *-graphie*, which represents Latin *-graphus* from Greek *-graphos*, meaning ‘written’ or ‘writing’ and is employed in English to form nouns denoting (a) something written or drawn in a special way, such as autograph, photograph, pictograph, etc. and (b) an instrument that records something or by some means such as heliograph, seismograph, telegraph, etc. However, as we shall see later, in linguistics, two types of instrument are denoted by -graph: ‘instrument for graphic representation’ and ‘instrument for measurement’. According to the OED,

“the great bulk of the words in -graph is composed of technical terms of very recent invention, mostly formed on Greek elements”

The -graph derivatives used technically in linguistics can be divided morphologically into eight types:

- | | |
|--|--|
| 1- Full word + -graph: | kinegraph |
| 2- Contracted word + -graph: | ocill(ation)-o-graph, glott(is)-o-graph |
| 3- Combining form + -graph: | glossograph, hetrograph, holograph,
homograph, ideograph, laryngograph,
pneumograph, sonograph, spectrograph |
| 4- Combining form + combining form + -graph: | electrolaryngograph,
electromyograph, electropalatograph |
| 5- Combining form + Greek root + -graph: | electrokymograph, pneumotachograph |
| 6- Greek root + -graph: | kymograph, logograph, plethysmograph |

- 7- Latin root + -graph: pictograph
- 8- Prefix + -graph: digraph, trigraph

The entities denoted by the above listed syntagmas can be divided semantically into three groups, with the first group sub-divided into two sub-groups as follows:

1- Instruments (sub-divided according to their main functions):

1.a- Instruments for graphic representation:

glossograph	for the graphic representation of the movements of the tongue during speech
laryngograph	for the graphic representation of the vibration of the vocal folds during speech
logograph	for the graphic representation of speech sounds
electromygraph	for the graphic representation of muscular contractions during speech
osillograph	for the graphic representation of the variation in air pressure of sound waves
electropalatograph	for the graphic representation of tongue-palate contact during speech
spectrograph	for the graphic representation of speech sound frequencies and intensities as part of speech analysis
sonograph	(same as spectrograph)

1.b- Instruments for measurement:

glottograph	for measuring the extent of opening in the glottis
electrokymograph	for measuring the velocity and volume-velocity or air flow through the mouth and the nose

plethysmograph	for measuring the expansion and contraction of the chest during speech
pneumograph	for measuring expansion of the chest during speech
pneumotachograph	for measuring air flow through the mouth and the nose simultaneously and independently

2- Things written in a special way:

digraph	a combination of two letters representing a single speech sound
trigraph	a combination of three letters representing a single speech sound
heterograph	one of two or more words which differ in spelling but have the same meaning and/or pronunciation
homograph	one of two or more words which are identical in spelling but different in meaning
holograph	a document completely written in its author's handwriting

3- Symbolic representations

ideograph	a symbol in a writing system representing a word or a concept
kinograph	a symbol representing a gesture or body movement
logograph	a sign or symbol representing a word as in shorthand or some ancient writing systems
pictograph	a pictorial symbol or sign representing a word or group of words; especially in a writing system

Based on this semantic classification of the entities denoted by -graph derivatives, this suffix can be said to have four senses and, therefore, most of these terms are only contextually transparent.

All the above listed -graph derivatives denoting 'instrument' belong to the domain of phonetics where these instruments are used for different purposes related to speech production, sound analysis and graphic representation as indicated above. Some of these terms are borrowed from medicine and physiology such as 'plethysmograph', 'pneumograph' and 'pneumotachograph'. Almost all -graph derivatives denoting 'instrument' have a logical relationship with the -gram derivatives of the same base as these -gram derivatives denote 'the outputs' of the instruments denoted by the -graph derivatives as can be seen from the following examples:

Instrument	Output
laryngograph	laryngogram (a graphical record of the vibration of the vocal folds)
electropalatograph	electropalatogram (a graphical record of the tongue-palate contact during speech)
plethysmograph	plethysmogram (a measurement record of the expansion and contraction of the chest)
glossograph	glossogram (a graphic record of the movements of the tongue)
kymograph	kymogram (a measurement record of the velocity and volume-velocity of air flow through the mouth or the nose)

This logical 'producer-product' relationship between -graph and -gram derivatives has to be reflected semantically and formally in Arabic when translating both sets of terms in order to maintain the conceptual value represented by this relationship.

Most of the terms of the other two groups belong to the domain of graphology. The term 'logograph' is polysemous as it denotes both 'a type of instrument' and 'a symbolic representation' (NSOED). The two terms of

‘hetrograph’ and ‘homograph’ are semantically related through the sense-relation of antonymy as indicated by the determinants of both syntagmas: ‘hetro-’ meaning ‘different’ and ‘homo-’ meaning ‘same’. Some of the -graph derivatives from the second and third groups are also semantically related to -gram derivatives of the same base through the sense-relation of synonymy such as

- homograph = homogram
- ideograph = ideogram
- logograph = logogram
- pictograph = pictogram

This relationship has also to be taken into consideration in translating these sets of terms.

In addition to being used technically to denote the above listed entities, some of the -graph derivatives are also used as bases for further suffixation to form other morphologically related terms to fulfil some semantic and syntactic functions as can be seen from the following list:

ideograph	ideographic, ideographical, ideographically
laryngograph	laryngographic
oscillograph	oscillographic, oscillographically, oscillography
pictograph	pictographic, pictography
palatograph	palatography
plethysmograph	plethysmographic, plethysmographically, plethysmography
spectograph	spectographer, spectographic, spectographically, spectography

As we shall see later, the morpho-semantic relationships exhibited by these terms can have strong morphological and syntactic implications for translation.

In Arabic the concepts denoted by the suffix -graph are expressed differently through morphological and lexical devices. The concept of 'instrument' can either be expressed morphologically through specific morphological patterns (Wright, 1859/I: 130-131 and al-Astrabaadhii, 1975: I/186-188), or lexically through the use of specific terms. Four main morphological patterns are analogically employed to form nouns that

“denote the instrument that one uses in performing the act expressed by [...] [the] verb” (Wright, 1859/I: 130).

The four main patterns are:

MIF‘AL: *mibrad* (a file), *mibda‘* (a lancet), *mishrat* (a lancet), *mikhyat* (a needle), *miqta‘* (a cutter), *miqwad* (a halter or steering wheel)

MIF‘ALAH: *misraḥah* (a comb), *mihjamah* (a cupping-glass), *miknasah* (a broom), *mijrafah* (a shovel), *mirwahah* (a fan)

MIF‘AAL: *miftaah* (a key), *miyzaan* (a scale), *minshaar* (a saw)

FA‘‘AALAH: *fattaahah* (opener), *thaqqaabah* (puncher), *mahhaayah* (eraser)

The other patterns, which are either uncommon or unanalogical, include

FAA‘UUL: *maa‘uun* (implement, instrument)

MUF‘UL: *munkhul* (a sieve), *mughzul* (a spindle)

FI‘AAL: *khiyaat* (a needle)

MUF‘UUL: *mughluuq* (a lock or a door rod)

Lexically, the concept of instrument is expressed by single terms such as *aalah*, *‘adaat*, and *jihaaz*. Through lexical combination, or compounding, these terms are

employed to denote different types of instrument such as *aalat al-qiyaas* (measuring instrument), *adaat al-rasm* (drawing instrument), *jihaaz qiyaas al-daght* (pressure measuring instrument), *jihaaz tahliil al-damm* (blood analysis instrument), etc.

The concepts of ‘specially written sounds, letters, words or documents’ are normally expressed through compounding in which modifiers, such as *khattii* (of or pertaining to writing and more specifically handwriting), *makhṭuūt* (handwritten), *kitaabii* (of or pertaining to writing), *hijaa’ii* (of or pertaining to spelling), are used. Finally, the concept of ‘symbolic representation’ is expressed by single terms such as *ramz* (symbol) and ‘*alaamah* (sign).

The translation into Arabic of the above listed -graph derivatives is governed by a number of factors which include (a) the semantic inconsistency of the suffix and (b) the morpho-etymological background of the terms, in addition to (c) the lack, in Arabic linguistics, of most of these technical concepts, especially those related to the various types of instrument used in modern phonetics.

In transferring the concepts denoted in English by the suffix -graph, Arab terminographers use different translation techniques, and therefore, give different translation equivalents. The following comparative survey of translation equivalents given by four terminographers shows that differences between them are most noticed in the translation equivalents given to the terms denoting ‘a type of instrument’:

Table no. (5.1.1)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Digraph	<i>thinharf</i>	-	<i>tahji’ah muzdawajah</i>	<i>harf thunaa’ii</i>
Electrokymograph	-	-	-	<i>mirsamah sam’iyyah kahrabaa’iyyah</i>
Electrolaryngograph	-	-	-	<i>mirsamat</i>

				<i>al-'ihtizaazaat</i> <i>al-</i> <i>kahrabaa'iyyah</i>
Electromyograph	-	-	<i>mi'daal</i>	<i>mirsamat</i> <i>al-'adalaat</i> <i>al-</i> <i>kahrabaa'iyyah</i>
Electropalatograph	-	-	-	<i>mirsamat</i> <i>al-ghaar</i> <i>al-</i> <i>kahrabaa'iyyah</i>
Glossograph	-	-	-	<i>mirsamat</i> <i>al-</i> <i>lisaan</i>
Glottograph	-	-	<i>mihzaaz hanjarii</i>	<i>mirsamat</i> <i>al-</i> <i>mizmaar</i>
Hetrograph	<i>mukhaalifah</i> <i>kitaabiyyah</i>	-	<i>mukhtalif</i> <i>al-kitaabah</i>	<i>mughaayir</i> <i>kitaabii</i>
Holograph	-	-	-	<i>sanad khattii</i>
Homograph	<i>mujaanisah</i> <i>kitaabiyyah</i> <i>mushtarak</i> <i>kitaabii</i>	<i>al-mushtarak</i>	<i>muttaḥid</i> <i>al-kitaabah</i>	<i>mujaanis kitaabii</i>
Ideograph	<i>ramz fikrii</i>	<i>al-'iduukraaf</i>	<i>tahji'ah</i> <i>tamthiiliyyah</i>	<i>ramz fikrii</i>
Kinegraph	-	-	-	<i>ramz 'iymaa'ii</i>
Kymograph	<i>al-</i> <i>kaaymuughraaf</i> <i>mirsaam</i> <i>al-mawjaat</i> <i>al-sawtiyyah</i>	<i>al-kaymuukraaf</i>	<i>mimwaaḡ</i>	<i>mirsamah</i> <i>sam'iyyah</i>
Laryngograph	-	<i>al-rasm</i> <i>al-hanjarii</i>	<i>raasim hanjarii</i>	<i>mirsamat</i> <i>al-'ihtizaazaat</i>
Logograph	<i>ramz mufradaatii</i> <i>lughuughraaf</i>	<i>luuguukraaf</i>	<i>tahji'ah</i> <i>lughawiyyah</i>	<i>ramz kalimii</i>
Myograph	-	-	-	<i>mirsamat</i> <i>al-'adalaat</i>
Oscillograph	<i>mirsaam</i> <i>al-dhabdhabaat</i>	<i>raasim</i> <i>al-dhabdhabaat</i>	<i>mihzaaz raasim</i> <i>raasim al-</i> <i>dhabdhabaat</i>	<i>mirsamat</i> <i>al-dhabdhabaat</i>

Pictograph	<i>ramz taṣwiirī</i>	-	-	<i>ramz ṣuwariī</i>
Plethysmograph	-	-	-	<i>miqyaas ḥajm al-hawaa'</i>
Pneumograph	-	-	-	<i>miqyaas al-ḥarakah al-ṣadriyyah</i>
Pneumotachograph	-	-	-	<i>miqyaas al-jarayaan</i>
Sonograph	<i>mirsaam al-'aṣwaat</i>	<i>al-suunuukraaf</i>	<i>miṭyaaf</i>	<i>mirsamat al-'aṣwaat</i>
Spectrograph	<i>mirsaam al-ṣawt mirsamat al-ṣawt jihaaz al-rasm al-tayfī</i>	<i>al-sbiktruukraaf</i>	<i>miṭyaaf</i>	<i>mirsamat al-'aṣwaat</i>
Trigraph	<i>thilḥarf ḥarf thulaathī</i>	-	-	<i>ḥarf thulaathī</i>

As can be seen from the above listed translation equivalents, -graph has either been (a) transferred through direct borrowing, (b) literally translated through the employment of different morphological patterns, (c) extensionally translated through the employment of a morphological pattern to the whole term or (d) translated through a paraphrasal expression. Examples of direct borrowing are *al-kaaymuughraaf* for 'kymograph', *lughuughraaf* for 'logograph' (cf. al-Khuulii, 1982), *al-suunuugraaf* for 'sonograph' and *al-sbiktruugraaf* for 'spectrograph' (cf. Bakalla et al, 1983). These examples of direct borrowing show that the quoted Arab terminographers use different Arabic letters to represent the English phoneme /g/. Al-Khuulii (1982) uses the Arabic *ع* (/gh/) while Bakalla et al (1983) use the Arabic *ك* (/k/ with a diacritic). Semantically, it would have been more appropriate if these terms were translated rather than borrowed because direct borrowings are not transparent, do not easily lend themselves to further derivation, and create formal and conceptual disassociations with other terms of the same terminological system.

Variation in the literal translation equivalents given to -graph reflects the employment of three morphological patterns: *MIF'AAL*, *FAA'IL* and *MIF'ALAH*.

Al-Khuulii (1982) employs *MIF'AAL* and *MIF'ALAH* to form translation equivalents such as *mirsaam al-dhabdhabaat* for 'oscillograph', *mirsaam al-mawjaat al-sawtiyyah* for 'kymograph' and *mirsamat al-sawt* for 'spectrograph'. Both patterns denote the concept of 'instrument' and are, therefore, denotatively precise. However, using two patterns for the same concept results in translation equivalents that lack formal consistency. Bakalla et al (1983) and ALECSO (1989) employ the pattern *FAA'IL* and give different translation equivalents such as *raasim al-dhabdhabaat* for 'oscillograph' (cf. Bakalla et al 1989) and *raasim hanjarii* for 'laryngograph' (cf. ALECSO 1989). These translation equivalents can be denotatively misleading because their underlying pattern, *FAA'IL*, does not originally denote the concept of 'instrument', but that of 'the active participle', which is normally animate in Arabic. ALECSO (1989) also uses the pattern *MIF'AAL* for translating 'oscillograph' (*mihzaaz al-dhabdhabaat*) and 'glottograph' (*mihzaaz hanjarii*). Although formed by one of the patterns that denote 'instrument', these two translation equivalents are denotatively inaccurate because *mihzaaz* in Arabic denotes 'the instrument that one uses to perform the action expressed by the verb *hazza* (to vibrate)' the result of which will be *ih dizaaz* or *hazzaat*, and this fails to correspond intensionally or extensionally to the functions of 'oscillograph' and 'glottograph'. In English, 'oscillograph' is

"an instrument for producing a graphic representation of the variations in air pressure of sound waves, showing frequency and amplitude" (Hartmann and Stork, 1972: 160).

In other words, 'oscillograph' is not used to perform the action of *ih dizaaz* (vibration) but to represent graphically one of the outcomes of that action, namely the variation in air pressure caused by different sound waves. On its part, 'glottograph' is defined in English as "an instrument for measuring the extent of opening in the glottis" (Asher, 1994, X/5127), which rules out any correspondence to the above given intension of *mihzaaz* in Arabic. Al-B'albakii (1990), employs *MIF'ALAH* to translate -graph as *mirsamah* in the terms that denote 'a type of graphic

representation instrument' and *MIF'AAL* to translate -graph as *miqyaas* in the terms that denote 'a type of measuring instrument'. Each set of his translation equivalents for -graph is formally consistent and denotatively accurate, with the exception of the two translation equivalents given to 'glottograph' and 'kymograph', in which he uses *mirsamah* whereas they denote 'a measuring instrument' for which *miqyaas* should be used. His consistent use of *mirsamah* conforms with the recommendation made by the Cairo academy to employ the pattern *MIF'ALH* in translating all -graph derivatives that denote 'graphic representation instruments' (al-Khatīb, 1986: 342).

Extensional translation equivalents produced by the employment of a morphological pattern to the whole -graph derivative include *mi'daal* for 'electromyograph', *mimwaaaj* for 'kymograph' and *mityaaf* for 'sonograph' and 'spectrograph' (cf. ALECSO, 1989). None of these translation equivalents is denotatively accurate due mainly to the same reasons given above for the inaccuracy of *mihzaaz*. In English, 'electromyograph' is "an instrument for recording muscular contractions during speech" (Asher, 1994: X / 5116), and by no means can *mi'daal* in Arabic denote the same concept. This is because, in addition to the above reasons given for the inaccuracy of *mihzaaz*, the lexical morpheme from which *mi'daal* is derived, (*'-d-l*), has no denotative relationship with the main function of 'myograph', which is 'to record or represent graphically' to which the lexical morpheme (*r-s-m*) is denotatively related. Likewise, *mimwaaaj* and *mityaaf* in Arabic would denote the instruments that are used to produce *mawjaat* (waves) and *tayf* (spectrum) respectively, and none of these senses can be found in the two intensions given in English to 'kymograph' and 'sonograph or spectrograph'. In English, 'kymograph' is the instrument that

"can continuously measure, record and display the velocity and volume-velocity or air flow through the mouth and the nose"(Trask, 1996: 128, under *electrokymography*)

and 'sonograph or spectrograph' is

“any of various devices which accept a stretch of speech (or other sound) as input and produce as output a recording or display representing an analysis of the input, usually a graph with frequency on the vertical axis and time on the horizontal axis, with the darkness of the graph at any point representing the intensity of the sound” (*Ibid*: 328, under *sound spectrograph*).

Finally, the paraphrasal expression *jihāaz al-rasm al-tayfii* given by al-Khuulii (1982) to ‘spectrograph’ is denotatively accurate, in respect of the suffix -graph, but it is not morphologically concise. The problem of lack of concision in this translation equivalent is due to the fact that the concept of ‘instrument’ here is expressed lexically by the word *jihāaz*, but not morphologically through any of the above mentioned patterns that denote ‘instrument’.

The above Arab terminographers also differ in translating -graph in the derivatives of the other two groups of ‘specially written things’ and ‘symbolic representations’. Al-Khuulii (1982) and al-B‘albakii (1990) translate -graph as *ḥarf* in ‘digraph’ and ‘trigraph’ and as *ramz* in ‘ideograph’, ‘logograph’ and ‘pictograph’, which are denotatively adequate, while in ALECSO (1989) it is translated as *tahji’ah*, which is less adequate in ‘digraph’ and inaccurate in ‘ideograph’ and ‘logograph’. This is so because *tahji’ah* (lit. spelling) is not one of the conceptual components of the concepts of ‘ideograph’ and ‘logograph’. ‘Ideograph’ is

“a character symbolising the idea of a thing without expressing the sequence of sounds in its name, as a numeral, any of various Chinese characters, etc”. (NSOED)

Likewise, ‘logograph’ is

“a sign, symbol, or character representing a word, as in shorthand or some ancient writing systems” (*Ibid*, under *logogram*).

In translating the two sense-related terms of ‘heterograph’ and ‘homograph’, the quoted Arab terminographers show more differences in translating the bases to

which -graph is appended than in translating the suffix itself. In al-Khuulii (1982), the two terms are translated as *mukhaalifah kitaabiyyah* and *mujaanisah kitaabiyyah*, in ALECSO (1989) as *mukhtalif al-kitaabah* and *muttaḥd al-kitaabah* and in al-B‘albakii (1990) as *mughaayir kitaabii* and *mujaanis kitaabii* respectively. The three sets of Arabic equivalents maintain the sense-relation of antonymy by using antonyms such as *mukhaalifah/mujaanisah*, *mukhtalif/muttaḥd* and *mughaayir/mujaanis*. However, in all these translation equivalents, -graph is related to ‘writing’ while intensionally it is more related to ‘spelling’. In English, ‘heterograph’ is technically defined as

“one of two or more words which are identical in meaning and perhaps in sound, but different in spelling, e.g. *inquiry, enquiry*”
(Hartmann and Stork, 1972: 103)

and ‘homograph’ is defined as

“one of two or more words which are identical in spelling, but different in meaning, e.g. *lead* ‘to guide’ and *lead* ‘metal’” (Ibid: 104).

Therefore, because spelling is logically the basis according to which a word is represented through writing, and since ‘difference in’ and ‘sameness of’ spelling is the main factor, it follows that spelling not writing should be semantically represented in the translation equivalents. Accordingly, the terms *hijaa’ii* or *’imlaa’ii* are denotatively more adequate than *kitaabii*. In ‘heterograph’, on the other hand, it is writing, and more specifically hand writing, that is involved therefore, in Arabic, the terms *khattii* or *makhtuut* are involved.

Based upon the above given division of the entities denoted by the -graph derivatives used in linguistics, and following this critical review of the translation equivalents given by four Arab terminographers to these derivatives, we can conclude that -graph in the sense of ‘instrument’ is translated through the employment of the two morphological patterns of *MIF‘ALAH* and *MIF‘AAL* to

produce *mirsamah* for ‘graphic representation instrument’ and *miqyaas* for ‘measuring instrument’ as follows:

electrolaryngograph	<i>mirsamah ḥanjariyyah kahrabaa’iyyah</i> <i>mirsamat al-ḥibaal al-ṣawtiyyah al-kahrabaa’iyyah</i>
electromyograph	<i>mirsamat al-‘aḍalaat al-kahrabaa’iyyah</i>
electropalatograph	<i>mirsamat al-nuṭq al-ḥanakii al-kahrabaa’iyyah</i>
glossograph	<i>mirsamat al-lisaan</i>
laryngograph	<i>mirsamah ḥanjariyyah</i> <i>mirsamat al-ḥibaal al-ṣawtiyyah</i>
logograph	<i>mirsamah lafẓiyyah</i>
myograph	<i>mirsamat al-‘aḍalaat</i>
oscillograph	<i>mirsamat al-dhabdhabaat</i>
sonograph	<i>mirsamat al-taḥlīl al-ṣawtii</i>
spectrograph	<i>mirsamat al-taḥlīl al-ṣawtii</i>
electrokymograph	<i>miqyaas al-tadaffuq al-hawaa’ii (al-kahrabaa’ii)</i>
glottograph	<i>miqyaas al-mizmaar</i>
kymograph	<i>miqyaas al-hawaa’</i>
plethysmograph	<i>miqyaas al-hawaa’ al-ṣadrii</i>
pneumograph	<i>miqyaas al-ḥarakah al-ṣadriyyah</i>
pneumotachograph	<i>miqyaas al-tadaffuq al-hawaa’ii</i>

Thus, denotative precision and formal consistency are achieved in both sets of translation equivalents.

In translating the terms of group two denoting ‘things written in a special way’, -graph is translated contextually as *ḥarf* in ‘digraph’ and ‘trigraph’, *khattiyyah* or *makḥṭuūṭah* in ‘holograph’ and *hijaa’iyyah* or ‘*imlaa’iyyah* in ‘hetrograph’ and ‘homograph’ as follows:

digraph	<i>ḥarf thunaa’ii</i>
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trigraph	<i>ḥarf thulaathii</i>
holograph	<i>wathiiqah makḥtuūtah</i>
	<i>wathiiqah khattiyyah</i>
hetrograph	<i>mukhaalifah hijaa'iyyah/'imlaa'iyyah</i>
	<i>mughaayirah hijaa'iyyah/'imlaa'iyyah</i>
homograph	<i>mujaanisah hijaa'iyyah / 'imlaa'iyyah</i>
	<i>mumaathilah hijaa'iyyah / 'imlaa'iyyah</i>

Here, denotative precision is totally achieved, but formal consistency is only partially achieved because -graph in these English terms denotes different entities and, consequently, in Arabic it is represented by different lexical items because Arabic lacks a single lexical or morphological device to accommodate all these concepts.

Finally, -graph in the terms denoting 'a symbolic representation' is translated consistently as *ramz* as follows:

ideograph	<i>ramz 'iḥaa'ii</i>
kinegraph	<i>ramz 'iymaa'ii</i>
logograph	<i>ramz lafẓii/kalimii</i>
pictograph	<i>ramz taṣwiirii</i>

The problem with all of the above suggested Arabic translation equivalents is that they are compounds not single-word terms like their English counterparts. This structural pattern restricts the process of further derivation in Arabic to produce semantically and syntactically motivated derivatives to translate morphologically and semantically related terms such as ideographic, osillographically, oscillography, pictography, electropalatography and pneumotachography. In Arabic, such terms as these can only be rendered through further compounding and lexical combinatin as can be seen from the following examples:

ideographic system	<i>nizāam al-rumuuz al-'ihāa'iiyah</i> <i>nizāam al-ramz al-'ihāa'ii</i> <i>nizāam ramzii 'ishaarii</i>
oscillographically	<i>min tariiq /min khilaal al-rasm al-dhabdhabii</i> <i>min tariiq /min khilaal rasm al-dhabdhabaat</i> <i>rasman dhabdhabiyyan</i>
oscillography	<i>al- rasm al-dhabdhabii</i> <i>rasm al-dhabdhabaat</i>
pictography	<i>al-rasm al-taswiirii</i>
electropalatography	<i>al-rasm al-nuṭqii al-ḥanakii al-kahrabaa'ii</i>
pneumotachography	<i>qiyaas al-tadaffuq al-hawaa'ii</i>

The Arabic blends *thinḥarf* (from *thunaa'ii* and *ḥarf*) and *thilḥarf* (from *thulaathii* and *ḥarf*) given by al-Khuulii (1982)¹ as translation equivalents for 'digraph' and 'trigraph' respectively, represent the terminographer's manipulation to circumvent the problem of formal length in Arabic. These translation equivalents are destined to fail in gaining currency because blending is not a natural device of word-formation in Arabic (cf. 2.4).

5.2. -graphy

This suffix came to English from French or German (-graphie), which in turn took it from Latin representing Greek -graphia, meaning 'writing' (NSOED). Many of the Greek substantives in -graphia

"have been adapted in English (usually through the medium of other languages), and many other compounds of Greek elements on the analogy of them have been formed in English, or adapted from French or modern Latin". (OED)

¹ This technique of blending seems to be adopted from al-B'albaki (1967).

According to the NSOED, this suffix is employed in English to form nouns, frequently with the connective -o-, to denote (a) a style or method of writing, drawing, etc., as alligraphy, lithography and stenography, (b) the writing of or about (some thing denoted by the first element), as hagiography, historiography, etc., (c) the branch of knowledge relating to a particular descriptive science as bibliography and geography, and (d) an instrumental recording technique such as radiography. In linguistics, as we shall see later, more specific senses are denoted by the terms ending in -graphy.

Structurally, -graphy is appended to morphologically and etymologically different bases, and accordingly, its derivatives can be divided morphologically into at least seven types as follows:

- 1- Full word + -graphy alphabetography, phraseography
- 2- Contracted word + -o- + -graphy syllabography (syllab(le)+-o-+-graphy)
oscillography (oscill(ation)+-o-+-graphy)
terminography (termino(logy)+-graphy)
glottography (glott(is)+-o-+graphy)
- 3- Combining form + -graphy archaeography, cacography, chirography,
haplography, heterography, holography,
homography, ideography, lexicography,
geography, orthography, paedography,
petrography, phonography, stenography,
technography, theography, spectrography,
pneumography, palatography
- 4- Combining form + combining form + -graphy
electrolaryngography, electromyography,
electropalatography

5- Combining form + Greek root + -graphy

electrokymography, pneumotachography

6- Greek root + -graphy

kymography, demography, logography,
pasigraphy, tachygraphy, plethysmography

7- Latin root + -graphy

pictography

The entities denoted by these syntagmas can be divided semantically into nine groups as follows:

1- A study and/or branch of knowledge:

alphabetography	the study of alphabetic writing
archaeography:	the study of ancient written documents
chirography	the study of the forms and styles of handwriting
cryptography	the study of secret codes
epigraphy:	the study of ancient inscriptions
lexicography	the branch of applied lexicology concerned with the principles and practice of dictionary-writing
linguistic demography	the statistical study of different groups of language users and language varieties within a speech community
linguistic geography	the study of the regional distribution of languages or dialects
mythography	the study of myths
orthography	the study of systematic transcription with letters and pronunciation
palaeography	the study of ancient writings
pictography	the study of the pictorial systems of writing

terminography	the branch of terminology concerned with the principles and practice of terminological documentation, especially the writing of specialized dictionaries
theography	the study of the languages used to talk about God
typography	the study of the selection and organisation of letter-forms and other graphic features of the printed page

2- A special system or method of writing:

brachygraphy	a system of shorthand
cryptography	a system or method of secret writing
heterography	an orthographic system where symbols and sounds are not in one-to-one relationship
homography	a type of writing system in which one particular graphic sign always represents the same speech sound
ideography	a system of writing using ideograms or ideographs
logography	a system of writing in which the meaning of individual linguistic expressions is expressed by graphic signs or logograms
mythography	a system of writing in which things are used as symbols to convey messages
orthography	a spelling system of a language or dialect
paedography	a writing system specially devised to facilitate children's learning and reading
pasigraphy	a writing system using signs which are of almost universal significance

phonography	a system of writing based on the representation of individual sounds by graphic signs
phraseography	a writing system in which symbols represent phrases or sentences
pictography	a writing system in which pictorial images (pictograms) represent entities as they exist in the real world
stenography	a system of shorthand
syllabography	a system of writing using graphic signs representing syllables
tachygraphy	a system of shorthand or abbreviated writing
technography	a writing system devised for specialised fields

3- A state, condition or quality of writing:

cacography	bad handwriting incorrect spelling
calligraphy	beautiful handwriting
haplography	the inadvertent writing of a letter, word, etc., once, when it should have been repeated
orthography	correct or proper spelling
pseudography	incorrect spelling or false use of words

4- A style of writing:

calligraphy	the style of beautiful handwriting
chirography	the style or character of handwriting
palaeography	an ancient style of writing

5- A type of writing-related skill or practice:

brachygraphy	the skill or practice of writing in shorthand
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calligraphy	the skill or practice of writing beautifully or stylistically
cryptography	the skill or practice of encoding secret messages
lexicography	the skill or practice of writing dictionaries
orthography	the skill or practice of writing correctly
steganography	the skill or practice of secret writing
stenography	the skill or practice of writing in shorthand
terminography	the skill or practice of writing specialised dictionaries
typography	the skill or practice of printing

6- A type of writing-related relationship between words:

heterography	the relationship of difference in spelling of two or more words of identical meaning or pronunciation
homography	the relationship of identicalness in spelling of two or more words of different meaning

7- A type of writing:

brachygraphy	shorthand writing
cryptography	secret writing
epigraphy	inscribed writing
holography	a writing wholly by hand
petrography	a writing on hard surfaces, especially stone
steganography	secret writing
stenography	shorthand writing
tachygraphy	shorthand or abbreviated writing
typography	printed writing

8- A manual or instrumental technique of graphic representation:

electrolaryngography	the instrumental technique of representing graphically the vibrations of the vocal folds during speech
electromyography	the instrumental technique of representing graphically the movements of muscles during speech
electropalatography	the instrumental technique of representing graphically the contact between the tongue and the palate during speech
oscillography	the instrumental technique of representing graphically the variations in air pressure of sound waves
palatography	the traditional manual technique for determining which areas of the roof of the mouth are touched by the tongue during articulation
phonography	the instrumental technique of representing speech sounds graphically
spectography	the instrumental technique of representing graphically the frequencies and intensities of speech sound

9- An instrumental technique of measuring

electrokymography	the instrumental technique of measuring the velocity and volume-velocity or air flow through the mouth and the nose during speech
glottography	the instrumental technique of measuring the glottis during speech

plethysmography	the instrumental technique of measuring the expansion and contraction of the chest during speech
pneumography	the instrumental technique of measuring the expansion of the chest during speech
pneumtachography	the instrumental technique of measuring the air flow through the mouth and the nose simultaneously and independently

As can be seen from the above sets, a number of terms are polysemous as they contextually denote more than one entity such as

cryptography	<ul style="list-style-type: none"> 1- the study of secret codes 2- a system or method of secret writing 4- secret writing 5- the skill of encoding secret messages
calligraphy	<ul style="list-style-type: none"> 1- an instance of beautiful handwriting 2- a characteristic style of (hand) writing 3- the skill of writing elegantly or stylistically
orthography	<ul style="list-style-type: none"> 1- the study of systematic transcription with letters and pronunciation 2- a spelling system of a language or dialect 3- correct or proper spelling 4- the skill of writing correctly
stenography	<ul style="list-style-type: none"> 1- a system of shorthand 2- a writing in shorthand 3- the skill of writing in shorthand

Other polysemous terms include brachygraphy, epigraphy, heterography, homography, mythography, palaeography, phonography and tachygraphy. Some of the terms are also synonymous as they are used to denote more or less the same entity such as ‘brachygraphy/stenography’ and ‘cryptography/steganography’. According to the OED,

“all substantives in -graphy have actual or potential correlative agent-nouns in -grapher and adjectives in -graphic, -graphical”

Most of these substantives do also have correlative noun derivatives in -graph denoting instances of writing or graphic representation or instruments of measuring or graphic representation (cf. -graph).

Following this view of the origin, linguistic nature and employment in linguistics of the suffix -graphy, let us consider how the concepts it denotes in English are expressed in Arabic:

1- The concept of ‘study and/or branch of knowledge’ is either referred to through the employment of lexical items such as *diraasah* (study) ‘ilm (science) or *fann* (discipline), or, in some cases, through the mere employment of the name of the subject or branch of knowledge as follows:

	<i>diraasat al-nahw</i>	the study of grammar
	‘ilm al-nahw	the science of grammar
	<i>fann al-nahw</i>	the discipline of grammar
or	<i>al-nahw</i>	
	<i>diraasat al-ṣarf</i>	the study of the structure of words
	‘ilm al-ṣarf	the science of the structure of words
	<i>fann al-ṣarf</i>	the discipline that deals with the structure of words

or *al-ṣarf*

<i>diraasat al-lughah</i>	the study of language
<i>‘ilm al-lughah</i>	the science of language

<i>diraasat al-manṭiq</i>	the study of logic
<i>‘ilm al-manṭiq</i>	the science of logic
<i>fann al-manṭiq</i>	the discipline of logic

or *al-manṭiq*

<i>diraasat al-tafsiir</i>	the study of the interpretations of the holy Qur’aan
<i>‘ilm al-tafsiir</i>	the science of the interpretation of the holy Qur’aan

or *al-tafsiir*

<i>diraasat al-falak</i>	the study of outer space
<i>‘ilm al-falak</i>	the science of outer space

or *al-falak*

<i>diraasat al-ḥisaab</i>	the study of arithmetic processes
<i>‘ilm al-ḥisaab</i>	the science of arithmetic processes

or *al-ḥisaab*

2- The concept of ‘system or method of writing’ is expressed in Arabic through the employment of the term *nizaam* (the system or way of) through lexical combination such as

<i>nizaam al-kitaabah al-‘arabiyyah</i>	the system or way of writing in Arabic
<i>nizaam al-‘imlaa’</i>	the system or way of writing correctly
<i>nizaam al-hijaa’</i>	the system of spelling

<i>nizaam al-tashkiil</i>	the system or way of vowel specification through diacritics
<i>nizaam al-tarmiiz al-sirrii</i>	the system or way of secret encoding

In Arabic, the same concepts can also be referred to contextually through the employment of the determinants of these compounds, provided that the compounds are well established in use, thus: *al-kitaabah al-'arabiyyah*, *al-'imlaa' al-'arabii*, *al-hijaa' al-'arabii*, *al-tashkiil al-'arabii*, etc.

3- The concept of 'a state, condition or quality of writing' is normally expressed through lexical combination where specific lexical items, such as *kitaabah* (writing), *kitaabii* (of or pertaining to writing), *khatt* (handwriting, script, style of writing), *'imlaa'* (orthography), *'imlaa'ii* (of or pertaining to orthography), *tahji'ah* or *hijaa'* (spelling) and *hijaa'ii* (of or pertaining to spelling), are employed as determinants or determinata as follows:

<i>kitaabah sahiiah</i>	correct writing or spelling
<i>kitaabah maghluutah</i>	incorrect writing or spelling
<i>kitaabah qadiimah</i>	ancient writing or ancient style of writing
<i>tashiif 'imlaa'ii</i>	orthographic mistake(s)
<i>tahji'ah saliimah</i>	correct spelling
<i>khatt jamiil</i>	beautiful handwriting
<i>khatt muqallad</i>	a copied style of handwriting
<i>khatt hadiith</i>	a modern style of writing or handwriting

4- The concept of 'style of writing' is usually expressed through the employment of the term *khatt* (writing or handwriting) in compounds where it is modified by different adjectival terms referring to different styles of writing or handwriting, such as

<i>al-khatt al-qadiim</i>	the ancient style of writing
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<i>al-khatt al-hadiith</i>	the modern style of writing
<i>al-khatt al-kuufii</i>	the kufic style of writing
<i>al-khatt al-zukhrufii</i>	the decorative style of writing
<i>al-khatt al-fannii</i>	the style of skilful writing

5- The concept of 'writing-related skill' is normally referred to by the term *fann* (skill), such as *fann al-khatt* (the skill of writing elegantly or stylistically), *fann al-'imlaa'* (the skill of writing correctly), *fann al-naqsh* (the skill of writing on hard surfaces), *fann al-tibaa'ah* (the skill of printing texts), *fann al-kitaabah* (the skill of writing literary prose), etc. The concept of 'skill' can also be expressed in Arabic through other terms, such as *mahaarah* (skill), *braa'ah* (proficiency or skilfulness), or through the employment of other terms in the *masdar* form denoting the process of achieving the result of the action expressed by the underlying verb, such as *tahsiin* (embellishment), from the verb *hassana*, *tajmiil* (beautification), from *jammala*, *tajwiid* (amelioration), from *jawwada*, *tafniin* (producing or making skilfully or varyingly), from *fannana*, etc. When employed in compounds, such as *tahsiin al-khatt*, *tajmiil al-kitaabah* or *al-khatt*, *tajwiid al-kitaabah* or *al-khatt*, and *tafniin al-kitaabah* or *al-khatt*, these terms can contextually denote the skill of producing 'beautiful, embellished, ameliorated or skilful and/or varied writing or handwriting' respectively.

The concept of 'writing-related practice' is expressed in Arabic by different terms that denote the 'action or process' of whatever the underlying verb denotes, such as *fann al-khatt* (the action or process of producing skilful or beautifully varied handwritings), *sinnaa'at al-ma'aajim* (the action or process of skilfully compiling or writing dictionaries), *fann al-naqsh* (the action or process of writing skilfully on hard surfaces), *fann al-ikhtizaal* (the action or process of writing skilfully in shorthand), etc. Some of these concepts can also be expressed through the employment of a morphological pattern that denotes 'a trade, office or handicraft' such as *FI'AALAH*, which forms *kitaabah* (trade of writing), *sinnaa'ah* (trade of producing or making), *tibaa'ah* (trade of printing), etc.

6- The concept of 'writing-related relationship between words' is usually expressed through compounding in which morphological and lexical devices are employed. The morphological device consists in the employment of one of the morphological patterns of *MUFAA'ALAH* , *TAFAA'UL* or *IFTI'AAL*, which denote 'a reciprocal action or the state or condition of reciprocity', to form semantically related terms such as *mushaarakah/tashaaruk/ishtiraak* (lit. sharing), *mughaayarah/taghaayur* (dissimilation), *mushaabah/tashaabuh* (similarity), *mukhaalafah/takhaaluff/ikhtilaaf* (difference or dissimilarity), etc. These terms are employed as compound heads modified by lexical items in the adjectival form and denotatively related to writing, spelling or pronunciation, such as

<i>mushaarakah lafziyyah</i>	the state of sharing the same form or pronunciation
<i>taghaayur 'imlaa'ii</i>	the state of orthographic dissimilation
<i>tashaabuh lafzii</i>	the state of similarity in form or pronunciation
<i>mukhaalafah kitaabiyyah</i>	the state of dissimilarity in writing
<i>ikhtilaaf 'imlaa'ii</i>	the state of orthographic dissimilarity
<i>ishtiraak lafzii</i>	the state of sharing the same form or pronunciation

7- The concept of 'a type of writing' is referred to in Arabic through compounding in which the term *kitaabah* (writing) is employed as compound-head modified by adjectival lexical items that specify the type of writing such as

<i>kitaabah yadawiyyah</i>	handwriting
<i>kitaabah sirriyyah</i>	secret writing
<i>kitaabah ikhtizaaliyyah</i>	shorthand writing
<i>kitaabah turkiyaah</i>	Turkish writing
<i>kitaabah naqshiyyah</i>	engraved writing

8- The concepts of 'instrumental technique of graphic representation' and 'instrumental technique of measuring' as employed in modern linguistics are not found in Arabic linguistics due to the fact that they are the product of modern technology. However, instrumental techniques of other kinds are usually expressed through the employment of one of the *maṣḍar* patterns which form substantives that express the action indicated by the underlying verb or the process of using the instrument denoted by the 'noun of instrument' derived from the same verb as follows:

<i>maṣḍar</i>	underlying verb	instrument
<i>kharṭ</i> (FA'L) (turning)	<i>kharṭa</i> (to turn wood or metal)	<i>mikhraṭah</i> (a lathe)
<i>qiyaas</i> (FI'AAL) (measuring)	<i>qaasa</i> (to measure)	<i>miqyaas</i> (a measure)
<i>tanjiir</i> (TAF'IIL) (wood planing)	<i>najjara</i> (to plane wood)	<i>minjarah</i> (a plane)
<i>bary</i> (FA'L) (sharpening)	<i>bariya</i> (to sharpen)	<i>mibraat</i> (a sharpener)
<i>qass</i> (FA'L) (cutting or shearing)	<i>qassa</i> (to cut or shear)	<i>miqass</i> a pair of scissors
<i>thaqb</i> (FA'L) (piercing or boring)	<i>thaqaba</i> (to pierce or bore)	<i>mithqaab/mithqab</i> (a borer)

Having reviewed the Arabic lexical and morphological resources for expressing the concepts denoted in English by the -graphy derivatives, it will be helpful to discuss the translation equivalents given to these derivatives by Arab terminographers, namely: al-Khuulii (1982), Bakalla et al (1983), ALECSO (1989)

and al-B‘albakkii (1990). As we shall see below, some of the above listed terms are not included at all by any of these terminographers and some others are not included by some of them. None of the above mentioned Arab terminographers identifies all the senses denoted by the -graphy derivatives, and some of the senses, namely ‘a technique of measuring’, is not represented at all by any of the terminographers. The sense of ‘a style of writing’ is represented only by al-Khuulii (1982). In many cases, different translation techniques are used by the same or different terminographer for translating terms of the same denotation, producing formally and, sometimes, denotatively different translation equivalents. For practical reasons, translation equivalents for each set of the above semantically distinguished terms will be discussed separately.

1- Translation of the set of terms denoting ‘a study and/or branch of knowledge’:

The following comparative table of translation equivalents given by the above mentioned Arab terminographers to the first set of terms reveals that only some of the terms in the set have been identified as denoting ‘a study and/or branch of knowledge’. At least four translation techniques are employed to translate these terms and at least four types of translation equivalents are given:

Table no. (5.2.1)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakkii 1990
Alphabetography	<i>diraasat</i> <i>al-kitaabah</i> <i>al-hijaa’iyyah</i>	-	-	<i>diraasat</i> <i>al-kitaabah</i> <i>al-’alifbaa’iyyah</i>
Archaeography	<i>diraasat</i> <i>al-makhtuutaat</i> <i>al-qadiimah</i>	-	-	<i>makhtuutaatiyyah</i>
Chirography	-	-	-	-
Cryptography	<i>diraasat</i> <i>al-kitaabaat</i> <i>al-musta’siyyah</i>	-	-	<i>i’daad</i> <i>al-mushaffaraat</i>

Epigraphy	<i>diraasat al-nuquush</i>	<i>diraasat al-nuquush</i>	<i>diraasat al-nuquush</i>	<i>nuquushiyyah</i>
Lexicography	<i>ṣinaa‘ah mu‘jamiyyah</i> + <i>ṣinaa‘at al-ma‘aajim</i>	<i>ṣinaa‘at al-ma‘aajim</i>	<i>ṣinaa‘at al-ma‘aajim</i> + <i>mu‘jamiyaat</i>	<i>ṣinaa‘at al-ma‘aajim</i>
Linguistic demography	-	<i>al-dimughraafyaa al-lughawiyyah</i>	<i>dimughraafyaa lughawiyyah</i>	<i>dimughraafyaa lughawiyyah</i>
Linguistic geography	-	-	-	-
Mythography	-	-	-	<i>kitaabah ‘asaatiriyyah</i>
Orthography	<i>‘ilm al-‘imlaa’</i>	<i>nizaam al-tahji‘ah</i>	<i>nizaam al-tahji‘ah</i>	<i>‘ilm al-‘imlaa’</i>
Palaeography	<i>diraasat al-kitaabaat al-qadiimah</i>	<i>diraasat al-nuquush al-qadiimah</i>	<i>‘ilm al-khuṭuut wa al-makhtuutaat al-qadiimah</i>	<i>tadbiiyyah</i>
Palatography	<i>diraasat rusuum al-ḥanak</i>	-	<i>ḥanakiyaat</i>	<i>ghaariyyah</i>
Pictography	<i>kitaabah taṣwiiriyyah</i>	-	<i>kitaabah taṣwiiriyyah</i>	<i>ramziyyah ṣuwariyyah</i>
Terminography	-	-	-	-
Theography	-	-	-	<i>thiyughraafyaa</i>
Typography	-	-	-	<i>tibaa‘iyyah</i>

In what follows we shall identify the translation techniques employed and critically discuss the resultant translation equivalents.

(a) Literal translation: which consists in the employment of the Arabic term *diraasah* for -graphy as ‘the study of’ such as *diraasat al-kitaabah al-hijaa’iyyah* for ‘alphabetography’ and *diraasat al-makhtuutaat al-qadiimah* for ‘archaeography’ (cf. al-Khuulii, 1982), *diraasat al-nuquush* for ‘epigraphy’ (cf. Bakallah et al, 1983 and ALECSO, 1989) and *diraasat al-kitaabah al-‘alifbaa’iyyah* for ‘alphabetography’ (cf. al-B‘albaki, 1990). Literal translation is also manifest in the employment of the Arabic term ‘ilm for -graphy as ‘a branch of knowledge’ such as *‘ilm al-‘imlaa’* for

‘orthography’ (cf. al-Khuulii, 1982 and al-B‘albakkii, 1990) and ‘ilm al-khuṭuūt wa al-makḥṭuūṭaat al-qadiimah for ‘palaeography’ (cf. ALECSO, 1989). These literal translation equivalents are denotatively precise because in Arabic they denote the concept of ‘a subject of study or a branch of knowledge’ denoted in English by -graphy. The problem with these translation equivalents is that they are morphologically inconcise as most of them are compounds consisting of three lexical items.

(b) Employment of the Arabic suffix *-iyyah* as in *makḥṭuūṭaatiyyah* for ‘archaeography’, *nuquushiyyah* for ‘epigraphy’, *tadbiiyyah* for ‘palaeography’ and *ṭibaa‘iyyah* for ‘typography’ (cf. al-B‘albakkii, 1990). These translation equivalents are morphologically concise but denotatively imprecise because in Arabic the suffix *-iyyah* is either employed semantically, through what is known in Arabic as *al-masdar al-sinaa‘ii*, to denote (1) a state, condition or quality or (2) a movement, theory or school of thought, or syntactically to derive the feminine form of the adjective. Therefore, *makḥṭuūṭaatiyyah* in Arabic would either denote ‘the state, condition or quality of being *makḥṭuūṭaat* (handwritten documents), ‘a movement, theory or school of thought based on handwritten documents’ or ‘the quality of being related to handwritten documents’. None of these three concepts corresponds intensionally or extensionally to the definition given in English to ‘archaeography’, i.e., “the systematic description of antiquities” (NSOED) or “the study of ancient written documents” (Hartmann and Stork, 1972: 17).

Likewise, *nuquushiyyah* in Arabic either denotes ‘the state, condition or quality of being *nuquush* (inscriptions), ‘a movement, theory or school of thought based on inscriptions’ or ‘the quality of being related to inscriptions’. Neither intensionally nor extensionally do these concepts correspond to the concept of ‘epigraphy’, which is defined in English as

“the branch of knowledge that deals with the interpretation, classification, etc., of inscriptions” (NSOED)

or

“the study of ancient inscriptions on hard surfaces such as stone”
(Hartmann and Stork, 1972: 77)

Tadbiiyyah, on its part, is derived from *tadbii*, which is a *maṣḍar* of the verb *dabbaja* from *dabaja*, meaning “to inscribe or dapple” (’Aniis et al, 1987). *Tadbii* as a *maṣḍar* is formed by the morphological pattern *TAF’ILL*, which, in this context, denotes either causativity, repetition or intensity of the action expressed by the underlying verb *dabbaja*. Therefore, *tadbiiyyah* either denotes ‘the state, condition or quality of being the result of the action of *tadbii* (inscription in this context), ‘a movement, theory or school of thought based on the action or result of inscription’ or ‘the quality of being related to the action of inscription or its result’. Thus, *tadbiiyyah* can by no means have the same denotation as

“the science or art of deciphering and determining the date of ancient documents or systems of writing” (NSOED)

or

“the study of ancient writings and inscriptions”. (Asher, 1994: X / 5152)

On the same scale, *tibaa’iyyah* either denotes ‘the state, condition or quality of being *tibaa’ah* (the action or result of printing), ‘a movement, theory or school of thought based on printing’ or ‘the quality of being related to the action or result of printing’, and none of these can be said to correspond to the concept of

“the study of the selection and organization of letter-forms and other graphic features of the printed page” (Crystal, 1992: 399)

denoted in English by the term ‘typography’.

Finally, it should be mentioned that the employment of the suffix *-iyyah* is clearly intended to produce concise translation equivalents in an attempt to solve the

problem of 'lack of concision' normally created in Arabic by literal translation. However, this attempt by al-B'albakii (1990) to produce concise Arabic technical terms is achieved at the expense of denotative precision, which, in terminology, should always be given first priority.

(c) The employment of the Arabic suffix *-yaat* in creating translation equivalents such as *mu'jamiyaat* given by ALECSO (1989) to 'lexicography'. This suffix has been increasingly used by Arab translators, terminologists and terminographers to refer to the concept of 'a science, discipline or branch of knowledge' such as *al-lisaaniyaat* for 'linguistics', *al-sawtiyaat* for 'phonetics' (cf. ALECSO, 1989), *al-riyaadiyaat* for 'mathematics' (cf. al-B'albakii, 1967), etc. Some of the Arab terms formed by this suffix, such as the already mentioned ones, have already gained currency among many Arab scholars and students. It is worth mentioning, however, that this suffix is usually more related to the translation of the English suffix *-ics* than to any other suffix, but since *-yaat* has already been conceptually established as referring to the concept of 'science, discipline or branch of knowledge', there is no reason why it should not be employed in translating terms of the same denotation, provided that consistency is achieved denotatively and, whenever possible, formally.

(d) Direct borrowing which is employed to produce *dimughraafyaa* in *al-dimughraafyaa al-lughawiyyah* for 'linguistic demography' (cf. Bakalla et al, 1983, ALECSO, 1989 and al-B'albakii 1990) and *thiyughraafyaa* for 'theography' (cf. al-B'albakii, 1990). The translation equivalent given to 'linguistic demography' seems to be based on the already used direct borrowing of *dimughraafyaa* in Arabic as it is adopted in widely used English-Arabic dictionaries such as al-B'albakii (1967), while *thiyughraafyaa*, on the other hand, is a new creation in Arabic. As we shall see later, both terms can be translated, rather than transferred, to achieve formal consistency with other terms and, more importantly, to achieve transparency which these direct borrowings lack.

In conclusion, the employment of different translation techniques to render denotatively similar terms has resulted in the lack of both formal and denotative consistency. With the exception of al-Khuulii (1982), who gives more or less consistent translation equivalents to the terms he identifies as denoting ‘a study and/or branch of knowledge’, each of the other quoted terminographers employs at least two translation techniques and gives at least two types of translation equivalents.

2- Translation of the set of terms denoting ‘a special system or method of writing’:

A cursory look at the following comparative table reveals that some of the terms of this set are not identified as ‘special systems or methods of writing’ by any of the above mentioned Arab terminographers, such as ‘cryptography’, and some others are only identified as ‘special systems or methods of writing’ by some of the terminographers, such as ‘orthography’, ‘homography’ and ‘phonography’:

Table no. (5.2.2)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Brachygraphy	-	-	-	<i>kitaabah</i> <i>ikhtizaaliyyah</i>
Cryptography	<i>diraasat</i> <i>al-kitaabah</i> <i>al-musta‘siyah</i>	-	-	<i>i‘daad</i> <i>al-mushaffaraat</i>
Heterography	<i>kitaabah</i> <i>mutaghaayirah</i>	-	-	<i>mughaayarah</i> <i>kitaabiyyah</i>
Homography	<i>tajaanus kitaabii</i> + <i>ishtiraak</i> <i>kitaabii</i>	-	<i>ishtiraak</i> <i>fii</i> <i>al-kitaabah</i>	<i>mujaanasah</i> <i>kitaabiyyah</i>
Ideography	-	-	-	<i>ramziyyah</i> <i>fikriyyah</i>
Logography	<i>kitaabah</i> <i>mufradaatiyyah</i>	-	-	<i>kitaabah</i> <i>kalimiyyah</i>

Mythography	-	-	-	<i>kitaabah</i> <i>'asaatiiriyyah</i>
Orthography	<i>'ilm al-'imlaa'</i>	<i>nizaam al-tahji'ah</i>	<i>nizaam al-tahji'ah</i>	<i>'ilm al-'imlaa'</i>
Paedography	-	-	-	<i>kitaabah</i> <i>ta'liimiyyah</i>
Pasigraphy	<i>kitaabah</i> <i>'aammah</i>	<i>al-baaskraafyaa</i>	<i>kitaabah</i> <i>'aammah</i>	<i>kitaabah</i> <i>'aammah</i>
Phonography	<i>kitaabah</i> <i>ṣawtiyyah</i>	<i>al-rasm al-ṣawtii</i>	<i>kitaabah</i> <i>nukhtazalah</i>	<i>ramziyyah</i> <i>ṣawtiyyah</i>
Phraseography	-	-	-	<i>ramziyyah</i> <i>'ibaariyyah</i>
Pictography	<i>kitaabah</i> <i>taṣwiiriyyah</i>	-	<i>kitaabah</i> <i>taṣwiiriyyah</i>	<i>ramziyyah</i> <i>ṣuwariyyah</i>
Stenography	<i>ikhtizaal</i>	-	-	<i>kitaabah</i> <i>ikhtizaaliyyah</i>
Syllabography	<i>kitaabah</i> <i>maḳṭi'iyyah</i>	<i>al-kitaabah</i> <i>al-</i> <i>maḳṭi'iyyah</i>	<i>kitaabah</i> <i>maḳṭi'iyyah</i>	<i>kitaabah</i> <i>maḳṭi'iyyah</i>
Technography	-	-	-	<i>kitaabah</i> <i>tiqaniyyah</i>

The above table reveals that the concept of 'system or method of writing' is either rendered intensionally through the employment of the Arabic term *nizaam* such as *nizaam al-tahji'ah* for 'orthography' (cf. Bakalla et al, 1983 and ALECSO, 1989), or extensionally through the employment of extensionally denotative lexical items such as *kitaabah* (writing) and *ikhtizaal* (shorthand) for different terms such as *kitaabah taṣwiiriyyah* for 'pictography', *ikhtizaal* for 'stenography' (al-Khuulii. 1982), *al-kitaabah al-maḳṭi'iyyah* for 'syllabography' (cf. Bakalla et al, 1983) and *kitaabah ta'liimiyyah* for 'paedography' (cf. al-B'albakii, 1990). The Arabic word *nizaam* is not intrinsically denotative of any sort of writing; therefore, in this context, it always requires a modifier such as *al-kitaabah* (writing), *al-hijaa'* (spelling), *al-'imlaa'* (orthography), etc. Some of these terms themselves, when modified, can denote 'a way or method of writing' because their underlying patterns are those of *maṣdar*, which denote the action expressed by the corresponding verb or the result of that action. Therefore, *kitaabah ikhtizaaliyyah*, for example, is the action or result of using

ikhtizaal (shorthand) as a method of writing. In the above cases, the term *nizaam* is dropped without disturbing the semantic function of the translated terms, i.e. 'brachygraphy' and 'stenography'. For the translation of some other terms such as 'orthography', however, the Arabic term *nizaam*, or any other lexical equivalent, is necessary in this sense (i.e. a special system or method of writing) because *al-hijaa'* and *al-'imlaa'*, which are normally used as Arabic equivalents to 'orthography', are to be used here as modifiers and not to be modified like *kitaabah* in *al- kitaabah al-ikhtizaaliyyah*. If *al-hijaa'* and *al-'imlaa'* are modified, such as *al-hijaa' al-'arabii* and *al-'imlaa' al-'arabii*, they will only denote specific types of systems.

The Arabic term *ramziyyah*, employed by al-B'albakki (1990) to translate the group of terms denoting 'a system or method of writing through symbolic representation', is denotatively imprecise and misleading. This is due to the fact that this term, being formed by the Arabic suffix *-iyyah*, can denote (a) 'a state, condition or quality of being *ramzii* (symbolic) or (b) 'a movement, theory or school of symbolism', and neither of these concepts is denoted by any of the translated English terms. In English, 'logography' in this context is the

"writing system in which the meaning of individual linguistic expressions (individual words) is expressed by graphic signs (logograms)" (Bussmann, 1996: 290),

'phraseography' is

"the use of phraseograms [and a phraseogram is] a written symbol representing a phrase, especially in shorthand" (NSOED)

and 'pictography' is

"a writing system using pictograms [and a pictogram is] a graphic sign which represents a stretch of speech by an image, e.g. a traffic sign" (Hartmann and Stork, 1972 177).

Based on this discussion, the term *ramziyyah*, in this context, has to be replaced by a denotatively precise derivative that denotes ‘the action or the result of employing symbols’, which is the *maṣḍar* form *tarmiiz*, whose underlying pattern, *TAF‘III*, denotes intensiveness or repetition of the action expressed by the verb *rammaza* (to intensively or repetitively symbolize or represent symbolically).

Another problem related to some of the above listed translation equivalents is that of translating the base to which the suffix -graphy is appended. In addition to the defectiveness of *ramziyyah*, the translation equivalent *ramziyyah fikriyyah* given by al-B‘albakkii (1990) to ‘ideography’, for example, is also inadequate in terms of translating the combining form ‘ideo-’. Employment of the term *fikriyyah* seems to be either based on its meaning as ‘idea’ in Greek, which means *fikrah* in Arabic, or on a hasty understanding of the definition given to ‘ideograph’ or ‘ideogram’ in English, which is

“a character symbolizing the **idea**¹ of a thing without expressing the sequence of sounds in its name, as a numeral, any of various Chinese characters, etc.”. (NSOED)

In linguistics, ‘ideograph’, or ‘ideogram’, is defined more precisely as

“a graphic sign used in a writing system [ideography] to represent a stretch of speech. [...] [Ideograph or ideogram] may be used for a character sign which stands for units larger than individual speech sounds, e.g. words (logogram), or for a visual image representing a message, e.g. a traffic sign (pictogram)”. (Hatrmann and Stork, 1972: 106)

A thorough understanding of the definition and use of ‘ideograph’ in English reveals that its function is to stand for words or sentences through conceptualizable symbols and signs, which through constant use become conventional. Therefore, the Arabic terms *iyḥaa’ii* (suggestive or indicative) and *’ishaarii* (referential) are denotatively

¹ Emphasis added in bold.

more appropriate than *fikrii* (or *fikriyyah*) in translating ‘ideography’ in the sense of ‘a special system or method of writing’, i.e., *tarmiiz iyhaa’ii* or *tarmiiz ’ishaarii*.

Finally, ‘homography’ and ‘heterography’ are identified by al-Khuulii (1982) and al-B‘albakii (1990) as ‘systems of writing’ in the explanation they give under each entry, but the translation equivalents given do not convey this meaning and only express the sense of ‘a writing-related state or condition of a relationship between words’.

3- Translation of the set of terms denoting ‘a state, condition or quality of writing’:
The following is a comparative table of the translation equivalents given by the four terminographers to the set of terms denoting the above mentioned concept:

Table no. (5.2.3)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Cacography	<i>1-tahji’ah</i> <i>khaaṭi’ah</i> 2- <i>khaṭṭ</i> <i>radii’</i>	-	<i>1-tahji’ah</i> <i>khaaṭi’ah</i> 2- <i>khaṭṭ</i> <i>ghayr</i> <i>waaḍiḥ</i>	<i>1-laḥn kitaabii</i> 2- <i>khaṭṭ radii’</i>
Calligraphy	<i>khaṭṭ mujawwad</i>	<i>fann al-khaṭṭ</i>	<i>fann al-khaṭṭ</i>	<i>tajwiid al-khaṭṭ</i>
Haplography	<i>tasḥiif kitaabii</i>	<i>al-hadḥf al-sawtii</i>	<i>ḥadḥf tasḥiifi</i>	<i>ifraad khaṭṭii</i>
Orthography	<i>tahji’ah saḥiḥah</i>	<i>nizaam al-tahji’ah</i>	<i>nizaam al-tahji’ah</i>	<i>’ilm al-’imlaa’</i>
Pseudography	-	-	-	-

First of all, it is worth pointing out that the term ‘pseudography’ is not included in any of the four dictionaries, two of the included terms (orthography and calligraphy) are only identified as denoting ‘a state, condition or quality of writing’ by al-Khuulii (1982) and ‘cacography’ is not included in Bakalla et al (1983). ‘Cacography’ denotes both (a) incorrect writing and (b) bad handwriting, and both senses are represented by the other three terminographers. For ‘incorrect writing’ al-Khuuli (1982) and ALECSO (1989) use *tahji’ah khaaṭi’ah*, which is a literal translation of ‘incorrect spelling’, while al-B‘albakii (1990) uses *laḥn kitaabii*, which is a free

translation. The main difference between the two translation equivalents is that in *tahji'ah khaati'ah*, -graphy is translated as *tahji'ah* (spelling) and in *lahn kitaabii*, it is translated as 'a state of a quality of writing'. Contextually, both translation equivalents are adequate, but *tahji'ah khaati'ah* is denotatively more precise because it signals out 'spelling'¹, which is a main conceptual component of the concept of 'cacography', defined in English as "spelling which deviates from the accepted norm" (Hartmann and Stork, 1972: 31). In addition to this, in Arabic, the term *lahn*, used by al-B'albakii (1990), normally denotes 'a grammatical mistake, especially one related to inflexion rather than 'a spelling mistake''. In translating 'cacography' in the sense of 'bad handwriting', al-Khuulii (1982) and al-B'albakii (1990) give *khatt radii*, while ALECSO (1989) give *khatt ghayr waadih*. Both translation equivalents render -graphy as *khatt* but differ in the way they represent the combining form 'caco-' to which the suffix is appended. While both translation equivalents are more or less denotatively adequate, the first one, *khatt radii*, is more concise than the second, which is a paraphrasal expression rather than an abstractive terminological formation. If the phrase *ghayr waadih* is replaced by a denotatively precise single term such as *munghaliq* or *mustaghlaq*² (difficult to sort out or understand), the translation equivalent *khatt mustaghlaq* or *kitaabah mustaghlaqah* will be denotatively and formally acceptable. In translating 'calligraphy', al-Khuulii (1982) uses *khatt mujawwad*, which is denotatively accurate as -graphy is translated as *khatt* and the combinibg form as *mujawwad*. The modifier *mujawwad* is formed by the morphological pattern MUFA'AL, which denotes the passive participle and is employed attributively.

In translating 'haplography', each of the four Arab terminographers gives a different translation equivalent reflecting four different interpretations of the same term in English (cf. Table no. 5.2.3). In what follows, we shall discuss them individually to see to what extent they are satisfactory from the terminological point

¹ Spelling in this context is used in the sense of the "manner of expressing or writing words with letters" (NSOED).

² This is analogically based on Arabic phrases such as *istaghlaqa al-baab*, which means in Arabic 'asura fathuh' (became difficult to open) and *istaghlaqat al-mas'alah*, which means in Arabic 'asura fahmuhaa' (became difficult to sort out or understand) ('Aniis et al, 1987).

of view. The translation equivalent *al-hadhf al-sawtii* given by Bakalla et al (1983) is denotatively imprecise and misleading because it denotes ‘the omission of a sound’, which is a phonetic phenomenon for which the term ‘haplology’ is used in English, while ‘haplography’ denotes

“the inadvertent writing of a letter, word, etc., once, when it should have been repeated” (NSOED)

or

“the omission in writing of one or more similar letters in succession”.
(Hartmann and Stork, 1972: 102)

Although ‘haplography’ is a writing-based phenomenon, as pointed out in the above definitions, in Bakalla et al (1983) both ‘haplography’ and ‘haplology’ are translated as *al-hadhf al-sawtii*, which reflects the misinterpretation of ‘haplography’. Misinterpretation of this kind leads to misconceptualisation on the part of some Arabic readers who cannot resort to English references.

The translation equivalent *ifraad khattii* given by al-B‘albakii (1990) can not denote the concept of ‘haplography’ as defined in English, because in Arabic, *ifraad khattii* can either mean ‘the adoption of a single type or style of writing’ or ‘having the writing carried out by a single writer’. The Arabic term *khattii*, which is used as a modifier in this translation equivalent, can only denote ‘the quality or state of being related to the style or type of writing or, more commonly handwriting’. In other words, *khattii* as used in this phrase cannot denote ‘the state or condition of being related to letters or words’ which are the subject of omission as envisaged by the concept of ‘haplography’ in English. If *khattii* is replaced by *harfii* (of or pertaining to letters) or *kalimii* (of or pertaining to words) to produce *ifraad harfii* and *ifraad kalimii*, the translation equivalents will be much more adequate than *ifraad khattii*, but the problem here is that ‘haplography’ means either the omission of a letter or a word and, therefore, a general term that denotes ‘omission or dropping in writing words or sentences’ is required.

The translation equivalent *ḥadhf tashīifii* given by ALECSO (1989) is denotatively more acceptable than the above discussed two translation equivalents because it denotes ‘a type of omission (*ḥadhf*) resulting from mistakes in writing (*tashīif*)’. The problem with this translation equivalent is that it contains redundancy because, in this context in Arabic, *ḥadhf* is a type of *tashīif* and *tashīif* is the result of *ḥadhf* and other mistakes in writing. To get rid of this redundancy *tashīifii* has to be replaced by a denotatively precise term to act as a modifier, such as *ḥadhf kitaabii* or *ḥadhf ‘imlaa’ii*, for example.

Finally, the translation equivalent *tashīif kitaabii* given by al-Khuulii (1982) is also denotatively inaccurate because *tashīif* in Arabic does not specifically denote ‘the omission or dropping of a letter or a word’, but any type of mistake in writing such as the substitution of graphically close or neighbouring letters, the misplacement of diacritics, misspelling, etc. In order to be denotatively precise, any translation equivalent has to reflect, intensionally or extensionally, the essential semantic component or components of the SL term. In the present case of ‘haplography’, two essential semantic components are involved: the first is related to the action or result of omitting or dropping, and the second is related to the nature of the thing omitted or dropped. In Arabic, the terms *ḥadhf* (omission) and *saqt* or *isqaat* (dropping or missing), for example, can properly represent the first semantic component, and *kitaabii* (of or pertaining to writing) or ‘*imlaa’ii*’ (of or pertaining to correct writing) can represent the second component, which is represented in the SL term by the suffix -graphy.

In translating ‘orthography’, al-Khuulii (1982) employs *tahji’ah saḥīihah*, which is semantically adequate because it denotes ‘a quality of writing’ specified by the attributively used modifier *saḥīihah*.

4- Translation of the set of terms denoting ‘a style of writing’:

The following table of translation equivalents given by the above Arab terminographers shows that one of the three terms in the set, namely ‘chirography’ is not included at all by any of the terminographers. Only ‘palaeography’ is identified as a style of writing and is given the translation equivalent of *kitaabah qadiimah* (cf. al-Khuulii, 1982), which denotes ‘the ancient style of writing’, and therefore, denotatively adequate.

Table no. (5.2.4)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Calligraphy	<i>fann al-khatt</i>	<i>fann al-khatt</i>	<i>fann al-khatt</i>	<i>tajwiid al-khatt</i>
Chirography	-	-	-	-
Palaeography	<i>kitaabah qadiimah</i>	<i>diraasat al-nuquush al-qadiimah</i>	-	<i>tadbiijiyyah</i>

It is worth mentioning that the two translation equivalents given to ‘calligraphy’, *fann al-khatt* and *tajwiid al-khatt*, do not denote the concept of ‘style of writing’, but the concept of ‘skill, art or practice of writing stylistically’.

5- Translation of the set of terms denoting ‘a type of writing-related skill or its practice’:

It can be seen from the following table that ‘terminography’ is not included by any of the four terminographers, and that only ‘calligraphy’ is clearly identified as ‘a skill’ and ‘lexicography’ as ‘a practice’. The translation equivalents *i‘daad al-mushaffaraat*, given by al-B‘albakii (1990) for ‘cryptography’, can mean ‘the practice of producing coded messages’, but according to the explanation given under the entry of ‘cryptography’ this meaning is not intended.

Table no. (5.2.5)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990
Brachygraphy	-	-	-	<i>kitaabah</i> <i>ikhtizaaliyyah</i>
Calligraphy	<i>fann al-khatt</i>	<i>fann al-khatt</i>	<i>fann al-khatt</i>	<i>tajwiid al-khatt</i>
Cryptography	<i>diraasat</i> <i>al-kitaabah</i> <i>al-musta'siyah</i>	-	-	<i>i'daad</i> <i>al-mushaffaraat</i>
Lexicography	<i>sinaa'ah</i> <i>mu'jamiyyah</i> + <i>sinaa'at</i> <i>al-ma'aajim</i>	<i>sinaa'at</i> <i>al-mu'jam</i>	<i>sinaa'at</i> <i>al-ma'aajim</i> + <i>mu'jamiyaat</i>	<i>sinaa'at</i> <i>al-mu'jam</i>
Orthography	<i>'ilm al-'imlaa'</i>	<i>nizaam al-</i> <i>tahji'ah</i>	<i>nizaam al-</i> <i>tahji'ah</i>	<i>'ilm al-'imlaa'</i>
Steganography	-	-	-	<i>hajib al-rumuuz</i>
Stenography	<i>ikhtizaal</i>	-	-	<i>kitaabah</i> <i>ikhtizaaliyyah</i>
Terminography	-	-	-	-
Typography	-	-	-	<i>tibaa'iyyah</i>

In translating 'calligraphy', al-B'albakii (1990) uses the Arabic term *tajwiid* to represent the semantic component of 'skill'. This term is denotatively adequate but cannot be employed consistently in translating other terms containing the same semantic component of 'skill', namely 'brachygraphy', 'orthography', 'cryptography', 'steganography', 'stenography' and 'typography', which, in this set, denote a type of skill and can be rendered consistently as *fann*. In fact, even 'lexicography' and 'terminography' can be translated through the use of the term *fann* in the sense of

"the actual practice of scientific theories through the employment of some means that verify these theories" ('Aniis et al, 1987: *Fann*),

therefore, achieving formal consistency, as we shall see later, in all translation equivalents of this set.

In translating 'lexicography', all the quoted terminographers agree in rendering -graphy as *ṣinaa'ah*, but disagree slightly in translating the combining form 'lexico-'. Al-Khuulii (1982) and ALECSO (1989) relate *ṣinaa'ah* to the plural (*ma'aajim*), while Bakalla et al (1983) and al-B'albakii (1990) relate it to the singular (*mu'jam*). In this context, relating to the plural is denotatively more precise than relating to the singular, because in Arabic when *al-mansuub 'ilayh* (the related to) is countable, i.e., not a mass noun, the relation to the singular gives more immediacy to a particular individual case than to the generic concept. In this context, the generic concept is achieved in Arabic through relating to the plural such as *ṣinaa'at al-sufun* (the building of ships), *ṣun' al-mafaatiiḥ* (the cutting of keys), *kitaabat al-rasaa'il* (the writing of letters) and *qat' al-'ashjaar* (the cutting of trees). In the case of relating to the singular, such as *ṣinaa'at al-safiinah* (the building of the ship), *ṣun' al-miftaah* (the cutting of the key), *kitaabat al-risaalah* (the writing of the letter) and *qat' al-shajarah* (the cutting of the tree), only specific individual actions of building, cutting, writing and cutting of specific individual things are denoted unless the substantives of the acted upon entities are used generically, which is unexpected in terminological designation (*al-wad' al-istilaahii*). Relating to the singular in the above quoted translation equivalents seems to be based on a very literal translation of the combining form 'lexico-' (lexicon), which is normally translated into Arabic as *mu'jam*. It should be pointed out here that

"every human language is a system which involves a great degree of complexity, far greater than we normally realize.[...] What applies in the case of one language may not necessarily apply in another".
(Ali, 1987: 8)

In English, for example, relating to the singular in compounds such as 'ship building', 'key cutting', 'letter writing' and 'tree cutting' is the normal process for denoting the same generic concepts expressed in Arabic through relating to the plural.

6- Translation of the set of terms denoting ‘a type of writing-related relationship between words’:

The following table shows that both terms in the set are not included in Bakalla et al (1983), and ‘heterography’ is not included in ALECSO (1989), while in al-Khuulii (1982) it is not identified as a relationship.

Table no. (5.2.6)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Heterography	<i>kitaabah</i> <i>mutaghaayirah</i>	-	-	<i>mughaayarah</i> <i>kitaabiyyah</i>
Homography	<i>tajaanus</i> <i>kitaabii</i> + <i>ishtiraak</i> <i>kitaabii</i>	-	<i>ishtiraak fii</i> <i>al-kitaabah</i>	<i>mujaanasah</i> <i>kitaabiyyah</i>

The two translation equivalents given by al-Khuulii (1982) to ‘heterography’, *tajaanus kitaabii* and *ishtiraak kitaabii*, are based on different morphological patterns: *TAFAA‘UL* and *IFTI‘AAL* respectively, but both can denote reciprocity; therefore, both translation equivalents are denotatively adequate. The translation equivalent *ishtiraak fii al-kitaabah* given by ALECSO (1989) for ‘homography’ is denotatively acceptable, but formally not because it is a paraphrasal expression that lacks the terminological property of concision. Finally, The translation equivalents *mughaayarah kitaabiyyah* for ‘heterography’ and *mujaanasah kitaabiyyah* for ‘homography’ given by al-B‘albakii (1990) are formed consistently by one morphological pattern *MUFAA‘ALAH*, which denotes reciprocity; therefore, they are denotatively precise and structurally concise, in addition to the fact that they maintain the sense-relation of ‘antonymy’ between the two concepts created by the two combining forms of ‘hetero-’ (different) and ‘homo-’ (same).

7- Translation of the set of terms denoting ‘a type of writing’:

As table no. (5.2.7) indicates, ‘holography’ is not included in any of the quoted dictionaries, and only ‘epigraphy’, out of nine terms, is included in Bakalla et al (1989) and ALECSO (1989). Only four terms of the set are included in al-Khuulii (1982) and only two of them are identified as types of writing.

Table no. (5.2.7)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Brachygraphy	-	-	-	<i>kitaabah</i> <i>ikhtizaaliyyah</i>
Cryptography	<i>diraasat</i> <i>al-kitaabaat</i> <i>al-musta‘siyah</i>	-	-	<i>i‘daad</i> <i>al-mushaffaraat</i>
Epigraphy	<i>nuquush</i>	<i>diraasat al-</i> <i>nuquush</i>	<i>diraasat al-</i> <i>nuquush</i>	<i>nuquushiyyah</i>
Holography	-	-	-	-
Petrography	-	-	-	<i>kitaabah</i> <i>hajariyyah</i>
Steganography	-	-	-	<i>hajib al-rumuuz</i>
Stenography	<i>ikhtizaal</i>	-	-	<i>kitaabah</i> <i>ikhtizaaliyyah</i>
Tachygraphy	<i>kitaabah</i> <i>ikhtizaaliyyah</i>	-	-	<i>kitaabah</i> <i>ikhtizaaliyyah</i>
Typography	-	-	-	<i>tibaa‘iyyah</i>

The two terms identified by al-Khuulii (1982) as denoting ‘types of writing’ are ‘stenography’, translated as *ikhtizaal*, and ‘tachygraphy’ translated as *kitaabah ikhtizaaliyyah*. Although the two terms are used as synonyms in the sense of shorthand, in al-Khuulii (1982) ‘tachygraphy’ is translated intensionally through the employment of the term *kitaabah* modified by *ikhtizaaliyyah*, which specifies the

type of writing denoted by *kitaabah*. ‘Stenography’, on the other hand, is translated extensionally through the use of the term *ikhtizaal*, which denotes the actual process or the result of using shorthand. In other words, -graphy is translated implicitly as ‘writing’ in *ikhtizaal* and explicitly as *kitaabah* in *kitaabah ikhtizaaliyyah*. Denotatively both translation equivalents are acceptable, but *ikhtizaal* is more concise and *kitaabah ikhtizaaliyyah* is more appropriate for achieving formal consistency as some other terms in the set cannot be adequately translated extensionally through the exclusion of the term *kitaabah* such as ‘cryptography’.

In al-B‘albakii (1990), only four out of the eight included terms are identified as ‘types of writing’ and translated intensionally through the literal translation of -graphy as *kitaabah*, thus maintaining denotative precision and formal consistency. If the translation equivalents are produced extensionally, (i.e., through the exclusion of the term *kitaabah*), the semantic component of ‘writing’ represented explicitly by -graphy in the SL terms will not be conceptually represented in Arabic, thus creating breaks in the conceptual relationships between the translation equivalents given to -graphy derivatives and some of those given to the derivatives of semantically and morphologically related suffixes such as -graph and -grapher.

8- Translation of the set of terms denoting ‘a technique of graphic representation’:

The following table reveals that only two terms of this set are included in al-Khuulii (1982) and only one of them is identified as ‘a technique of graphic representation’. In Bakalla et al (1983) and ALECSO (1989), only ‘phonography’ is included, but only in the former is it identified as ‘a technique’. Five of the seven terms in the set are included in al-B‘albakii (1990) and only four of these terms are identified as ‘techniques’, though some are not properly rendered into Arabic.

Table no. (5.2.8)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990
Electrolaryngography	-	-	-	<i>rasm</i> <i>al-'ihtizaazaat</i>
Electromyography	-	-	-	<i>rasm 'adalii</i> <i>kahrabaa'ii</i>
Electropalatography	-	-	-	<i>ghaariyyah</i> <i>kahrabaa'iyyah</i>
Oscillography	-	-	-	-
Palatography	<i>taswiir al-hanak</i>	-	-	<i>ghaariyyah</i>
Phonography	<i>kitaabah</i> <i>sawtiyyah</i>	<i>al-rasm</i> <i>al-sawtii</i>	<i>kitaabah</i> <i>mukhtazalah</i>	<i>ramziyyah</i> <i>sawtiyyah</i>
Spectography	-	-	-	-

In *rasm al-'ihtizaazaat*, given by al-B'albakii (1990) for 'electrolaryngography', *rasm*, in the *maṣḍar* form, can and is intended to denote the process not the product of the action denoted by the verb *rasama* (to draw or represent graphically), but in *rasm 'adalii kahrabaa'ii* given to 'electromyography', *rasm* denotes either a specific individual process of drawing or graphic representation or a product of that process, with more immediacy to the concept of 'a product'. This is because *rasm* in *rasm al-'ihtizaazaat* is modified by a definite modifier in the plural form (*al-'ihtizaazaat*) through a genitive construction, thus denoting the generic concept of the process or action of drawing or graphic representation. The same applies to *taswiir al-hanak* given by al-Khuulii (1982) for 'palatography', while in *rasm 'adalii kahrabaa'ii*, *rasm* is modified by an indefinite modifier in the singular form (*'adalii*). It thus denotes a specific process or action of drawing or graphic representation, or any product of that individual process or action. To denote 'a technique', *rasm* in the translation of 'electromyography' has either to be in the definitive through the prefixation of the definite article *al-*, thus: *al-rasm al-'adalii al-kahrabaa'ii*, like *al-rasm al-sawtii* given by Bakalla et al (1983) to 'phonography', or to be related to the plural in the definite form: *rasm al-'adalaat al-kahrabaa'ii*.

The employment of the Arabic suffix *-iyyah* by al-B‘albaki (1990) in forming *ghaariyyah* in the translation equivalents given to ‘electropalatography’ and ‘palatography’ has resulted in producing denotatively imprecise and misleading equivalents. This is because *ghaariyyah* in Arabic can denote ‘the state, condition or quality of being *ghaarii*’ or ‘a movement, theory or school of thought’; but none of these concepts is denoted by ‘palatography’, which is defined in English as

“a technique of recording the position of the tongue during articulation from its contact with the hard palate” (NSOED)
or

“a technique for determining which areas of the roof of the mouth are touched by the tongue during an articulation” (Trask, 1996: 255)

Finally, it is worth pointing out that *taswiir* as used by al-Khuuli (1982) in translating ‘palatography’ represents only one way of determining the points of contact between the tongue and the palate, namely: photography. The other ways are (a) by direct impression and (b) by using an artificial palate.

9- Translation of the set of terms denoting ‘a technique of measuring’:

None of the terms in this set is included in any of the four dictionaries except ‘electrokymography’, which is included in al-B‘albaki (1990) and is identified as ‘a technique of graphic representation’ rather than of ‘measuring’ (cf. table 5.2.9). It is worth pointing out that the *main objective* of ‘electrokymography’ is to ‘measure’ not to ‘represent graphically’ as can be seen from its definition in English, which is

“an instrumental technique employing a face mask connected to instruments which can continuously measure, record and display the velocity and volume-velocity or air flow through the mouth and the nose”. (Trask, 1996: 128)

Table no. (5.2.9)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990
Electrokymography	-	-	-	<i>rasm sam'ii</i> <i>kahrabaa'ii</i>
Glottography	-	-	-	-
Plethysmography	-	-	-	-
Pneumotachography	-	-	-	-
Pneumography	-	-	-	-

Following this critical review of the translation equivalents given by the above mentioned Arab terminographers, and based on the above semantic classification of the entities denoted by the -graphy derivatives, each set or sub-set of these derivatives can be translated consistently as follows:

- 1- The suffix -graphy in the set of terms denoting 'a study and/or branch of knowledge' is rendered lexically by the term '*ilm* and morphologically by -*yaat* in the sense of 'branch of knowledge', and as *diraasah* in the sense of 'study', as follows:

alphabetography	<i>'ilm al-kitaabaat al-'abjadiyyah</i> <i>al-kitaabiyaat al-'abjadiyyah</i> <i>diraasat al-kitaabaat al-'abjadiyyah</i>
archaeography	<i>'ilm al-makhtuutaat al-qadiimah</i> <i>al-makhtuutiyaat</i> <i>diraasat al-makhtuutaat al-qadiimah</i>
chirography	<i>'ilm al-khutuut al-yadawiyyah</i> <i>al-khutuutiyaat al-yadawiyyah</i> <i>diraasat al-khutuut al-yadawiyyah</i>
cryptography	<i>'ilm al-shafraat/'ilm al-kitaabaat al-sirriyyah</i>

	<i>al-kitaabiyaat al-tashfiiriyyah</i>
	<i>diraasat al-shafraat/diraasat al-kitaabaat</i>
	<i>al-sirriyyah</i>
epigraphy	<i>'ilm al-nuquush (al-qadiimah)</i>
	<i>al-nuquushiyaat (al-qadiimah)</i>
	<i>diraasat al-nuquush (al-qadiimah)</i>
palaeography	<i>'ilm al-kitaabaat al-qadiimah</i>
	<i>al-kitaabiyaat al-qadiimah</i>
	<i>diraasat al-kitaabaat al-qadiimah</i>
pictography	<i>'ilm (nuzum) al-tarmiiz al-taswiirii</i>
	<i>al-tarmiiziyaat al-taswiiriyyah</i>
	<i>diraasat (nuzum) al-tarmiiz al-taswiirii</i>
typography	<i>'ilm al-tibaa'ah</i>
	<i>al-tibaa'iyaa</i>
	<i>diraasat funuun al-tibaa'ah</i>
lexicography	<i>'ilm al-ma'aajim</i>
	<i>al-ma'aajimiyaat</i>
terminography	<i>'ilm al-ma'aajim al-fanniyyah</i>
	<i>al-ma'aajimiyaat al-fanniyyah</i>
orthography	<i>'ilm al-'imlaa'</i>
	<i>al-'imlaa'iyaa</i>
linguistic demography	<i>diraasat al-sukkaan al-lughawiyyah</i>
linguistic geography	<i>diraasat al-'aqaaliim al-lughawiyyah</i>
	<i>diraasat al-tawazzu' al-lughawii</i>
mythography	<i>diraasat al-'asaatiir</i>
theography	<i>diraasat al-lughaat al-laahuutiyyah</i>

2- In the set of terms denoting ‘a special system or method of writing’, -graphy is translated intensionally by the term *nizāam*, and extensionally by a morphological pattern, as follows:

brachygraphy	<i>nizāam al-kitaabah al-ikhtizaaliyyah</i> <i>nizāam al-ikhtizaal</i> <i>al-ikhtizaal</i>
cryptography	<i>nizāam al-tashfīr</i> <i>al-tashfīr</i> <i>al-kitaabah al-sirriyyah</i>
heterography	<i>nizāam al-takhaaluf al-’imlaa’ii</i>
homography	<i>nizāam al-tamaathul al-’imlaa’ii</i>
ideography	<i>nizāam al-tarmiiz al-’iyḥaa’ii</i> <i>al-tarmiiz al-’iyḥaa’ii</i>
logography	<i>nizāam al-tarmiiz al-kalimii</i> <i>al-tarmiiz al-kalimii</i>
mythography	<i>nizāam al-kitaabah al-’asaatīriyyah</i> <i>al-kitaabah al-’asaatīriyyah</i>
orthography	<i>nizāam al-’imlaa’</i>
paedography	<i>nizāam al-kitaabah al-ta’liimiyyah</i> <i>al-kitaabah al-ta’liimiyyah</i>
pasiography	<i>nizāam al-kitaabah al-’aalamīyyah</i> <i>al-kitaabah al-’aalamīyyah</i> <i>nizāam al-rumuuz al-’aalamīyyah</i> <i>al-tarmiiz al-’aalamii</i>
phonography	<i>nizāam al-tamthiil al-ṣawtii</i> <i>al-tamthiil al-ṣawtii</i> <i>nizāam al-rasm al-ṣawtii</i> <i>al-rasm al-ṣawtii</i>
phraseography	<i>nizāam al-tarmiiz al-’ibaarii</i> <i>al-tarmiiz al-’ibaarii</i>

pictography	<i>nizaam al-tarmiiz al-taswiirii</i> <i>al-tarmiiz al-taswiirii</i>
stenography	<i>nizaam al-kitaabah al-ikhtizaaliyyah</i> <i>nizaam al-ikhtizaal</i> <i>al-ikhtizaal</i>
syllabography	<i>nizaam al-kitaabah al-maqti'iyyah</i> <i>al-kitaabah al-maqti'iyyah</i>
tachygraphy	<i>nizaam al-kitaabah al-ikhtizaaliyyah</i> <i>nizaam al-ikhtizaal</i> <i>al-ikhtizaal</i>
technography	<i>nizaam al-tarmiiz al-takhassusii</i> <i>al-tarmiiz al-takhassusii</i> <i>nizaam al-tarmiiz al-fannii</i> <i>al-tarmiiz al-fannii</i>

3- In the set of terms denoting 'a state, condition or quality of writing', -graphy is translated contextually by different words formed by *masdar* patterns and are used as compound heads modified by adjectival terms, as follows:

cacgoraphy	1- <i>khatt radii' / kitaabah radii'ah</i> <i>khatt mustaghlaq/ kitaabah mustaghlaqah</i> 2- <i>lahn 'imlaa'ii/ tahji'ah khaati'ah</i>
haplography	<i>hadhf 'imlaa'ii/kitaabii</i> <i>saqt 'imlaa'ii/kitaabii</i>
pseudography	<i>kitaabah maghluutah</i> <i>kitaabah malhuunah</i>
calligraphy	<i>khatt jamiil</i> <i>khatt mujawwad</i> <i>kitaabah mufannanah</i> <i>kitaabah mujawwadah</i>
orthography	<i>kitaabah sahiiah</i>

4- -graphy in the set of terms denoting 'a style of writing' is translated as *khatt* or *kitaabah*, as follows:

calligraphy	<i>al-khatt al-fannii</i>
chirography	<i>al-khatt al-yadawii</i>
palaeography	<i>al-khatt al-qadiim</i>
	<i>al-kitaabah al-qadiimah</i>

5- -graphy in the set of terms denoting 'a type of writing-related art, skill or practice' is translated as *fann* or *sinaa'ah*, as follows:

brachygraphy	<i>fann al-ikhtizaa</i>
calligraphy	<i>fann al-khatt</i>
cryptography	<i>fann al-tashfiir</i>
	<i>fann al-kitaabah al-sirriyyah</i>
lexicography	<i>fann al-ma'aajim</i>
	<i>sinaa'at al-ma'aajim</i>
orthography	<i>fann al-'imlaa'</i>
steganography	<i>fann al-kitaabah al-sirriyyah</i>
stenography	<i>fann al-ikhtizaa</i>
terminography	<i>fann al-ma'aajim al-fanniyyah</i>
	<i>sinaa'at al-ma'aajim al-fanniyyah</i>
typography	<i>fann al-tibaa'ah</i>

6- In the set of terms denoting 'a type of writing-related relationship between words', -graphy is rendered by a *masdar* pattern denoting 'a state or condition, or reciprocity, as follows:

heterography	<i>mukhaalafh 'imlaa'iyyah</i>
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	<i>takhaaluf 'imlaa'ii</i>
homography	<i>mumaathalah 'imlaa'iyyah</i>
	<i>tamaathul 'imlaa'ii</i>

7- In the set of terms denoting 'a type of writing', -graphy is rendered as *kitaabah*, as follows:

brachygraphy	<i>al-kitaabah al-ikhtizaaliyyah</i>
cryptography	<i>al-kitaabah al-sirriyyah</i>
epigraphy	<i>al-kitaabah al-naqshiyyah</i>
holography	<i>al-kitaabah al-yadawiyyah</i>
petrography	<i>al-kitaabah al-hajariyyah</i>
steganography	<i>al-kitaabah al-sirriyyah</i>
stenography	<i>al-kitaabah al-ikhtizaaliyyah</i>
tachygraphy	<i>al-kitaabah al-ikhtizaaliyyah</i>
typography	<i>al-kitaabah al-maṭbuu'ah</i>

8- In the set of terms denoting 'a manual or instrumental technique of graphic representation', -graphy is translated as *rasm*, *taṣwiir* or *tahdiid*, as follows:

electrolaryngography	<i>al-rasm al-hanjarii al-kahrabaa'ii</i> <i>rasm al-hibaa al-sawtiyyah al-kahrabaa'ii</i>
electromyography	<i>al-rasm al-'adalii al-kahrabaa'ii</i> <i>rasm al-'adalaat al-kahrabaa'ii</i>
electropalatography	<i>al-rasm al-nuṭqii al-hanakii al-kahrabaa'ii</i> <i>rasm al-nuṭq al-hanakii al-kahrabaa'ii</i>
oscillography	<i>rasm al-dhabdhabaat</i>
palatography	<i>al-rasm al-nuṭqii al-hanakii</i> <i>rasm al-nuṭq al-hanakii</i> <i>taṣwiir al-nuṭq al-hanakii</i>

phonography	<i>taḥdiid al-nuṭq al-ḥanākii</i> <i>al-rasm al-ṣawṭii</i> <i>rasm al-'aṣwaat</i>
spectography	<i>al-rasm al-ṣawṭii al-taḥliilii</i> <i>rasm al-taḥliil al-ṣawṭii</i>

As can be seen from this list of translation equivalents, morpho-semantic relationships between the -graph derivatives denoting an instrument of graphic representation (cf. 5.1) and -graphy derivatives denoting a technique of graphic representation are consistently maintained through the consistent employment of the lexical morpheme *r-s-m*, on the one hand, and through the consistent employment of *MIF'ALAH* for the instrument and *FA'L* for the technique, on the other. Semantically, this maintains the logical relationship between the concept of instrument and the process of using that instrument. Morpho-semantic relationships can also be maintained with -grapher derivatives denoting 'a person skilled in the use of the instrument of graphic representation', through the employment of the morphological pattern *FA''AAL*, which denotes intensity or repetition of the action, to produce *rassaam*, i.e., a person skilled in using the *mirsamah*.

9- In the set of terms denoting 'an instrumental technique of measuring', -graphy is rendered by the term *qiyaas*, as follows:

electrokymography	<i>qiyaas sur'at al-hawaa' (al-kahrabaa'ii)</i>
glottography	<i>qiyaas al-mizmaar</i>
plethysmography	<i>qiyaas al-hawaa' al-ṣadrii</i>
pneumotachography	<i>qiyaas al-tadaffuq al-hawaa'ii</i>
pneumography	<i>qiyaas al-ḥarakah al-ṣadriyyah</i>

Here too, morpho-semantic relationships between -graph derivatives denoting an instrument of measuring and -graphy derivatives denoting the technique of using that instrument are consistently maintained in translation through the consistent use of the

lexical morpheme *q-y-s*, on the one hand, and through the employment of *MIF'AAL* for the instrument (cf. 5.2) and *FI'AAL* for the technique, on the other.

5.3. -gram

Etymologically, this suffix represents the Greek *gramma*, meaning 'something written' or 'a letter of the alphabet' (cf. OED). In English, the substantives containing this ending are either (a) direct adaptations from Greek, (b) adaptations through other languages such as Latin, German or French, or (c) derivatives formed by the suffix -gram. According to the NSOED, this suffix is employed in English to form

"nouns with the sense 'a thing written', as *chronogram*, *ideogram*; especially with the sense 'a (written) message', as *telegram*, *cablegram*".

In linguistics, however, the technical terms formed by this suffix exhibit more specific senses than the above, as shall be made clear below. Etymologically, the vast majority of the linguistic terms containing this ending are from type (c) above, and morphologically they fall into six pattern types as follows:

- | | |
|-----------------------------------|--|
| 1- Contracted word + -o- + -gram: | glott(is)ogram, oscill(ation)ogram
syllab(le)ogram |
| 2- Combining form + -gram: | audiogram, chronogram, cryptogram,
glossogram, homogram, ideogram,
linguagram, palatogram, panagram,
petrogram, phonogram, sonogram,
spectrogram |

3- Combining form + combining form + -gram:

electrolaryngogram, electromyogram,
electropalatogram

4- Combining form + Greek root + -gram: electrokymogram

5- Greek root + -gram: logogram

6- Latin root + -gram: pictogram

The morpho-etymological background exhibited by the above patterns can be an influential factor in translating these terms into Arabic, especially in respect of concision. The other linguistic terms containing -gram as an ending are either directly adapted from Greek such as 'lipogram', which is, according to the NSOED, a backformation from the Greek *lipogrammatos*, or adaptations through Latin, German or French such as 'anagram' (French *anagramme* or Latin *anagramma*), 'engram' (German *engramm*) and 'epigram' (French *epigramme* or Latin *epigramma*).

Semantically, the entities denoted by the above terms can be classified into six groups, in each -gram represents a separate concept as follows:

1- Something composed or written in a special way:

anagram	a word or group of words made up of the same letters as another word or group of words
chronogram	a phrase or sentence of which some letters express a date when added together
cryptogram	a text written in secret code
epigram	i- an inscription ii- a short poem leading up to an ending in a witty or ingenious turn of thought iii- a concise pointed saying

homogram	one of two or more words which are homographs with different etymologies
lipogram	a piece of writing constructed without using a particular letter of the alphabet
panagram	a sentence or series of words that contains all the letters of the alphabet
petrogram	an ancient inscription on stone

2- A symbolic representation:

ideogram	a graphic sign used in a writing system to represent a stretch of speech
logogram	a graphic sign used in logographic systems of writing to represent a word
phonogram	i- a graphic sign used in writing to represent sound elements in speech ii- a series of graphic signs representing similar sounds in different words
pictogram	a pictorial symbol or sign representing a word or group of words in a writing system
syllabogram	a graphic sign used in some systems of writing to represent a syllable

3- A trace of something:

engram	a memory trace of sound, word or syntactic rule, imprinted and stored in the human brain
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4- A picture or photograph of something:

glossogram	a drawing, photograph or actual impression of the points of contact of the tongue on the palate during the articulation of a speech sound
linguagram	a photograph of the tongue showing which parts of it have been coloured by contact with the colouring matter applied to the roof of the mouth during a traditional kind of palatography
palatogram	a picture of the roof of the mouth to identify the points of contact of the tongue and palate during the articulation of a speech sound

5- An output of an instrument of graphic representation:

electrolaryngogram	a graphic record produced by an electrolaryngograph representing the vibrations of the vocal folds during speech
electromyogram	a chart or record produced by an electromyograph representing the movements of muscles during speech
electropalatogram	a record produced by an electropalatograph representing the points of contact between the tongue and the palate during speech
glossogram	a graphic record produced by a glossograph representing the movements of the tongue during speech
phonogram	a chart or graphic representation produced by a phonograph for a speech sound
oscillogram	a record produced by an oscillograph showing the variations in air pressure of sound waves
sound spectrogram	a visual representation of the sound spectrum produced by a sound spectrograph showing the relative amplitude of the component frequencies of each sound as well as their intensity

sonogram	same as sound spectrogram
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6- An output of an instrument of measuring:

audiogram	a graph produced by an audiometer showing the measurement of the sensitivity of the ear to sounds of different frequencies
electrokymogram	a record produced by an electrokymograph showing the measurement of the velocity and volume-velocity or air flow through the mouth and the nose during speech
glottogram	a record or display produced by a glottograph showing the measurement of the opening of the glottis during speech

Based on this semantic classification it is clear that some terms are polesymous such as 'epigram' and 'phonogram', and that all -gram derivatives denoting 'an output of an instrument of graphic representation or measuring' are semantically related to the -graph or -meter derivatives of the same base denoting 'an instrument of graphic representation or measuring' through the logical producer-product relationship. This relationship has to be maintained in Arabic semantically and morphologically in order to maintain the structure of the conceptual system within which these concepts operate.

Before we consider how these terms are rendered into Arabic by Arab terminographers, it would be helpful to discuss how the concepts denoted by these terms are normally expressed in Arabic. First of all, it should be reiterated that some of these terms share the sense-relation of synonymy with the -graph derivatives of the same base such as 'ideogram', 'logogram' and 'pictogram' denoting 'a symbolic representation', and with some of those denoting 'something writtern in a special way' such as 'homogram'. Based on this fact, the synonymously related concepts are expressed in Arabic in the same way as that of expressing their -graph counterparts (cf. -graph). The concept of 'something comosed in a special way' is expressed in

Arabic through the employment of a term that denotes the thing composed or constructed modified by an adjectival term that identifies the type of thing composed or the way in which it is composed such as *'ibaarah mukhtaṣarah* (a concise expression or phrase), *jumlaḥ masjuu'ah* (an assonant sentence), *nass murakkaz* (a condensed text), *'ibaarah shaamilah* (a comprehensive expression or phrase), *kalaam muḥkam* (a well-phrased utterance) and *qaṣīdah masjuu'ah* (an assonant poem). In some cases, only single terms are used such as *ḥikmah* (an aphorism), *maquulah* (a famous saying), *mulḥah* (a joke or anecdote), *qaṣīdah* (a poem) and *malḥamah* (an epic). The two Arabic lexical morphemes usually employed to express how the above composed things are represented graphically are *k-t-b* (related to writing) and *n-q-sh* (related to inscription).

The concept of 'a trace of something' is expressed in Arabic through the use of different terms based on whether the trace is physical, material or psychological. The Arabic terms used to express material or physical traces include *'athar* (effect, vestige, mark, track, sign), *'alaamah* (sign, mark), *rasm* (trace, marking) and *irtisaam* (impression). The terms employed for expressing a psychological trace include *'athar* (effect), *intibaa'* and *irtisaam* (impression). The first two terms are usually qualified by adjectival terms such as *nafsii* (psychological), *'aatifii* (sentimental or emotional), *ruuḥii* (spiritual), etc.

The concept of 'picture' is expressed in Arabic by different terms such as *ṣūrah* or *taṣwīrah* (a drawing or photograph), *rasm* or *rasmah* (a drawing or painting), *rasm takḥtīīīī* (a sketch) and *wasf* (a description). The concept of 'photograph' is also expressed by *ṣūrah* or *taṣwīrah*, which are sometimes qualified by the adjectival term *daw'iyyah* (photic).

Finally, the concept of 'an output of an instrument of graphic representation or measuring' is new for Arabic as are the concepts of the instrument producing it and the technique in which it is used. However, having established Arabic equivalents for the concepts of 'instruments of graphic representation and

measuring’, as well as for the techniques in which they are used, it is possible to have derivatives denoting the outcome of the action or process expressed by the underlying transitive verb from the same Arabic lexical morphemes through the employment of the same *masdar* patterns used to derive the translation equivalents for the concepts of techniques of graphic representation and measuring, such as *rasm*, formed by *FA’L* for the output of an instrument of graphic representation, and *qiyaas*, formed by *FI’AAL*, for the output of an instrument of measuring.

In what follows, we shall critically discuss the translation equivalents proposed by the Arab terminographers for the above -gram syntagmas. As these syntagmas fall semantically into different sets, translation equivalents for each of the above sets will be treated separately. At the outset, it is worth pointing out that a number of the -gram derivatives are not included by some of the Arab terminographers, and other derivatives are not included at all by any of the terminographers, as can be seen from the forthcoming respective tables of translation equivalents.

1- The translation equivalents for the set of terms denoting ‘something composed or written in a special way’:

Table no. (5.3.1)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Anagram	<i>jinaas tashiiʿii</i>	-	<i>lafzah tuqra’ tardan wa ‘aksan’¹</i>	<i>jinaas tashiiʿii</i>
Chronogram	-	-	-	<i>taariikh jummalii</i>
Cryptogram	<i>kitaabah musta‘siyah</i>	-	-	<i>kitaabah mushaffarah</i>

¹ ‘Anagram’ in ALECSO (1989) is not placed in its alphabetical order but as a synonym to ‘palindrome’.

Epigram	1- <i>‘ibaarah</i> <i>manquushah</i> 2- <i>hikmah</i> <i>saakhirah</i> 3- <i>mulhah</i> <i>dhakiyyah</i>	-	-	1- <i>hikmah</i> <i>saakhirah</i> 2- <i>abighraam</i>
Homogram	<i>mujaanisah</i> <i>kitaabiyyah</i> + <i>mushtarak</i> <i>kitaabii</i>	<i>al-mushtarak</i> <i>al-kitaabii</i>	<i>tahji’ah</i> <i>mushtarakah</i>	<i>mujaanis</i> <i>kitaabii</i>
Lipogram	-	-	-	<i>mustaqta’</i>
Pangram	-	-	-	<i>jumlah</i> <i>shumuuliyyah</i>
Petrogram	-	<i>al-naqsh</i> <i>al-</i> <i>hajarii</i>	<i>tahji’ah</i> <i>hajariyyah</i> + <i>naqsh hajarii</i>	<i>naqsh hajarii</i>

First, it should be mentioned that although ‘homogram’ and ‘homograph’ are synonyms they are given different translations by Bakalla et al (1983) and ALECSO (1989) (cf. Tables no. (5.3.1) and (5.1.1)). In Bakalla et al (1983), ‘homograph’ is translated as *al-mushtarak* (*fii al-lafz ‘aw al-kitaabah*) while ‘homogram’ is translated as *al-mushtarak al-kitaabii*. In other words, ‘homograph’ is related to both pronunciation and writing, but ‘homogram’ is related only to writing. This semantic discrimination between ‘homograph’ and ‘homogram’ can lead to the misconception that ‘homograms’ share spelling only but not pronunciation while ‘homographs’ share either spelling, pronunciation or both. Employment of the term *kitaabii* is also denotatively inadequate because it has already been maintained that -graph in ‘homograph’ and -gram synonymously in ‘homogram’ are intensionally more related to spelling than writing; therefore, *hijaa’ii* and *‘imlaa’ii* are denotatively more precise than *kitaabii* (cf. 5.1). In ALECSO (1989), ‘homograph’ is translated as *muttahid al-kitaabah* and ‘homogram’ as *tahji’ah mushtarakah*. *Muttahid al-kitaabah* denotes the reflexive active participle through the morphological pattern

MUNFA'IL underlying *muttahid*, while *tahji'ah mushtarakah* denotes the process or result of (shared) spelling through the *masdar* pattern *TAF'ILAH* underlying *tahji'ah*. Both translation equivalents are denotatively inadequate because *muttahid al-kitaabah* gives more immediacy to the sense of reflexivity than to the sense of reciprocity. In other words, *muttahid al-kitaabah* denotes 'the word that is uniform in its writing' more than 'the word that shares its spelling with another word or words'. *Tahji'ah mushtarakah* is denotatively inaccurate because neither the process of (shared) spelling nor its result can denote the concept of 'homogram', which is defined in English as

"one of two or more words which are homographs with different etymologies". (Hartmann and Stork, 1972: 104)

To denote this, the translation equivalent should be based on a morphological pattern that denotes 'the reciprocal active participle' such as *MUFAA'IL* and *MUFAA'ILAH* to produce *mushaarik hijaa'ii* or *mumaathilah 'imlaa'iyyah* as has already been suggested for 'homograph' (cf. 5.1). It should be emphasized here that for the sake of semantic consistency, synonyms should either be translated by parallel synonyms in Arabic or, if this is not possible, be given the same translation equivalent in order to be equally conceptualized by the TL reader.

The translation equivalent *jinaas tashhiifi* given by al-Khuulii (1982) and al-B'albakii (1990) to 'anagram' is imprecise and misleading because, first, it denotes 'the resultant phenomenon of alliteration' but not 'the word or phrase that exhibits or is characterized by the resulting phenomenon'. In English, 'anagram' is defined as

"a word or group of words made up of the same letters as another word or group of words" (Hartmann and Stork, 1972: 12);

therefore, the translation equivalent in Arabic should denote 'the word or phrase that is characterized by the phenomenon of *jinaas* (alliteration)' as a result of the transposition of letters. Second, *jinaas tashhiifi* does not take into consideration the semantic component representing the reciprocal relationship between anagrams, i.e.,

the sharing of the same group of letters. Third, *tashiif* in Arabic denotes ‘a mistake in the writing or reading of a word or phrase due to uncertainty or similarity of letters’ (’Aniis et al, 1987: *sahhafa*). The transposition of letters in ‘anagram’, on the other hand, is not due to a mistake, but is a conscious action of using the same letters to write two words or phrases.

The paraphrasal expression *lafzah tuqra’ tardan wa ‘aksan* (lit. a word or phrase that can be read progressively and reversely) given by ALECSO (1989) to ‘anagram’ is denotatively inaccurate and formally unsatisfactory. First, it is denotatively inaccurate because the condition of ‘being able to be read progressively and reversely’ is not included in the intension of ‘anagram’ in English. In addition to the above definition given by Hartmann and Stork (1972), ‘anagram’ is defined in the OED as

“a transposition of the letters of a word, name or phrase, whereby a new word or phrase is formed”

and in Bussmann (1996: 21) as

“a meaningful expression (word, word group, or sentence) rendered from another by scrambling or rearranging the letters”.

Second, the above translation equivalent is formally unsatisfactory because it is a long paraphrasal expression. Based on this discussion, the translation equivalent for ‘anagram’ has to take into consideration the following semantic components: (a) the transposition (of letters), (b) the phenomenon of alliteration resulting from that transposition, (c) the thing (word or phrase) formed by transposition and exhibiting the resultant phenomenon of alliteration and (d) the relationship of reciprocity between the words or phrases formed by the same letters through the process of transposition. The components (b), (c) and (d) can be represented through the employment of the active participle pattern *MUFAA’IL* or *MUFAA’ILAH*, which denotes ‘the individual’ and ‘reciprocity’, to derive *mujaanis* or *mujaanisah* from the

lexical morpheme *j-n-s*, from which *jinaas* (alliteration) is derived. To incorporate component (a), *mujaanis* or *mujaanisah* has to be related to *taqliib* (transposition) through the employment of the adjectival term *taqliibii* or *tqliibiyyah*, which qualify *mujaanis* and *mujaanisah*, thus: *mujaanis taqliibii* and *mujaanisah taqliibiyyah*. In Arabic, the masculine form of the translation equivalent represents Arabic *lafz* or *ta'biir mujaanis* and the feminine form represents Arabic *lafzah*, *kalimah*, *'ibaarah* or *jumlah mujaanisah*.

The translation equivalent *taariikh jummalii* given by al-B'albakii (1990) to 'chronogram' is denotatively imprecise due to the fact that it denotes 'a date which is expressed in a special way', but not 'a phrase or sentence composed in a special way for the purpose of expressing a specific date', as the following definition of 'chronogram' in English can tell

"a phrase, sentence, or inscription, in which certain letters (usually distinguished by size or otherwise from the rest) express by their numerical values a date or epoch" (OED).

As can be understood from the explanation given by the terminographer under the entry of 'chronogram', the translation equivalent *taariikh jummalii* is modeled on what is called in Arabic *Hisaab al-Jummal*, which is

"a type of calculation system in which each of the alphabetical letters is given a numerical value ranging from one to one thousand in a special order". ('Aniis et al, 1987: *hasaba*)¹

Although the two concepts of 'chronogram' and '*hissab al-jummal*' share the same idea of assigning numerical values to letters, they do not denote the same thing. *Hisaab al-jummal* denotes 'a type of calculation system' and 'chronogram' denotes 'a type of phrase or sentence'. Consequently, to denote 'a phrase or sentence that expresses a date', the translation equivalent for 'chronogram' can be '*ibaarah mu'arrikhah* or *mu'arrikhah jummaliiyyah*. *Mu'arrikhah* in both translation

¹ My translation.

equivalents is formed by the morphological pattern *MUFA‘‘ILAH*, which denotes both ‘the active participle’ and ‘intensiveness of the action performed’, but in the first it is used predicatively and in the second it is used as a predicated subject. *Mu‘arrikhah jummaliyyah* is denotatively more precise than ‘*ibaarah mu‘arrikhah*’ because the former takes into consideration the two most essential semantic components of the concept of ‘chronogram’: (i) the expression of a date (represented here through *MUFA‘‘ILAH* and the lexical morpheme ‘-r-kh) and (ii) the way in which it is expressed (represented here through the employment of *jummaliyyah*, which means ‘of or pertaining to the giving of numerical values to letters’). ‘*Ibaarah mu‘arrikhah*’, in contrast, does not take into consideration the essential semantic component number (ii) above; therefore, it is not denotatively adequate.

Kitaabah mushaffarah given by al-B‘albaki (1990) to ‘cryptogram’ is denotatively more accurate than *kitaabah musta‘siyah* given by al-Khuulii (1982). This is because *mushaffarah* is based on the actual method of writing, which is ‘ciphering’ or ‘the use of secret codes’, whereas *musta‘siyah* is based on the result of the writing being carried out in a secret code. In other words, *mushaffarah* means ‘written in cipher’ and *musta‘siyah* means ‘difficult to sort out’. In English, ‘cryptogram’ is defined as “a text in a secret code” (Hartmann and Stork 1972: 56) or “something written in a cipher; a coded message” (NSOED). Based on these two definitions, *kitaabah mushaffarah* and *kitaabah sirriyyah* are semantically more precise than *kitaabah musta‘siyah*.

The three translation equivalents given by al-Khuulii (1982) to ‘epigram’ are supposed to represent the three above mentioned senses of this term. Denotatively, only ‘*ibaarah manquushah*’, given to the sense of ‘inscription’, can be regarded as satisfactory. *Hikmah saakhirah* is an inaccurate representation of the sense of “a terse, witty often paradoxical saying” (Asher, 1994, X / 5117), or “a concise pointed saying” (NSOED). The problem with *hikmah saakhirah* is in the addition of *saakhirah*, which does not seem to stand for any component within the semantic structure of the concept of ‘epigram’ as defined above. *Mulhah dhakiyyah*, given to

the third sense, is imprecise and contains a redundant element. It is imprecise because the essential semantic component of ‘poem or poetic structure’ is not represented, and it is redundant because the inclusion of *dhakiyyah* (witty) is unnecessary as *mulḥah* intensionally contains *dhakiyyah*. In English, ‘epigram’ in this context is defined as

“a short poem leading up to and ending in a witty or ingenious turn of thought” (NSOED).

The semantic component of ‘poem’ or ‘poetic structure’ can be represented through the replacement of the redundant element *dhakiyyah* by an adjectival modifier that denotes ‘the quality of being poetic’ such as *shi‘riyyah*, thus *mulḥah shi‘riyyah*. In al-B‘albakii (1990), only two senses are represented, namely ‘a concise saying, also translated as *ḥikmah saakhirah*, and ‘a short poem’, represented through direct borrowing as *abighraam* adopted from al-B‘albakii (1967), as stated by the terminographer himself. It has already been demonstrated that ‘epigram’ in the sense of ‘a short poem’ can be adequately translated and; therefore, there is no need for direct borrowing.

In translating ‘lipogram’, al-B‘albakii (1990) gives *mustaqṭa‘*, which is morphologically concise but semantically imprecise and misleading. If ‘lipogram’ is defined in English as

“a piece of writing constructed without using a particular letter of the alphabet” (McArthur, 1992: 612),

then *mustaqṭa‘* denotes the excluded letter rather than the piece of writing from which it is excluded. This follows from the fact that the underlying pattern *MUSTAF‘AL* denotes the passive participle, i.e., the object of the underlying verb, which is the thing excluded. To denote the thing from which some thing is excluded, *mustaqṭa‘* has to be modified by the prepositional construction *minhuu*, thus *mustaqṭa‘ minhuu*. In addition to its morphological defectiveness, this translation is also defective in respect of employing the lexical morpheme (*q-t-*) because the

deivative verb *qata'a* (lit. cut off, separate, break off, divide, etc.) would suggest that the excluded letter was originally in the piece of writing but was later taken out; and this is why *mustaqta'* is also misleading. The literal translation of 'lipogram' is *nass manquus al-harf*, which is denotatively precise because it represents the three essential semantic elements of the translated concept, namely: (a) a piece of writing (*nass*), (b) lacking (*manquus*) and (c) a letter or letters (*al-harf*). It is worth pointing out that even the Greek *lipgrammatos*, from which 'lipogram' is adapted through back formation, means 'lacking a letter' (NSOED). To make this translation equivalent concise, it can be contracted to *manquus al-harf* without causing a great loss in the semantic value of the term because the element of *nass*, or its lexical equivalence, can be cognitively recovered without being graphically represented as, logically, letters can only be components of a piece of writing, be it as short as a word or as long as a book.

The translation equivalent *jumlah shumuuliyyah* given by al-B'abakii (1990) to 'pangram' is denotatively adequate in terms of rendering -gram as *jumlah*, but it is ambiguous because *shumuuliyyah* (lit. characterized by or exhibits comprehension) can mean 'comprehensive in terms of content' and 'comprehensive in terms of structure'. In order to disambiguate this translation equivalent, *shumuuliyyah* has to be qualified in order to mean 'comprehensive in terms of letters' due to the fact that 'pangram' is defined in English as

"a sentence, etc., containing every letter of the alphabet" (NSOED).

Accordingly, *jumlah shaamilat al-huruuf* can be denotatively more precise than the above suggested translation equivalent, but unfortunately, less concise. To solve this problem, this translation equivalent can be structurally contracted as *shaamilat al-huruuf* or *al-shaamilah al-'abjadiyyah*. Thus, although *jumlah* is dropped the semantic component of *jumlah* or *'ibarah* (sentence, expression or string of words) can still be cognitively recovered in two ways: (i) from the suffix *-ah* representing

the feminine form in *shaamilah* and (ii) from the fact that *huruuf* or '*abjadiyyah*' is the basic structure components of words, which are the basic units of sentences.

Finally, *tahji'ah hajariyyah* given by ALECSO (1989) to 'petrogram' is denotatively inaccurate and logically loose. It is denotatively inaccurate because -gram in 'petrogram' does not mean *tahji'ah* (spelling), but *naqsh* (engraving), and it is logically loose because *tahji'ah* (spelling) is not normally qualified by the materials on whose surfaces it is realized in writing. *Tahji'ah* can be described as *sahiihah* (correct), *khaati'ah* (wrong), *waadihah* (clear, readable), etc., but not *hajariyyah* (stony), *waraqiyyah* (papery), *ma'daniyyah* (metal) or *khashabiyyah* (wooden). These are adjectival forms derived from the names of materials on whose surfaces *tahji'ah* (spelling) can be realized graphically in writing or inscription. Accordingly, the other translation equivalent *naqsh hajarii* given also to 'petrogram' by the same terminographer, as well as by Bakalla et al (1983) and al-B'albakii (1990), is denotatively precise and logically acceptable as it conforms with the definition given to 'petrogram', which is "an ancient inscription on stone". (Hartmann and Stork, 1972: 168)

2- The translation equivalents for the set of terms denoting 'symbolic representation':

Table no (5.3.2)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990
Ideogram	<i>ramz fikrii</i> + <i>ramz</i> <i>mufradaatii</i>	<i>al-'idyukraam</i>	<i>tahji'ah</i> <i>tamthiiliyyah</i>	<i>ramz fikrii</i>
Logogram	<i>ramz</i> <i>mufradaatii</i> + <i>lughughraam</i>	<i>lukukraam/</i> <i>lukukraaf</i>	<i>tahji'ah</i> <i>lughawiyyah</i>	<i>ramz kalimii</i>
Phonogram	<i>ramz kitaabii</i>	<i>al-fuunukraam</i>	<i>hijaa' sawtii</i>	<i>1-ramz kitaabii</i> <i>2-ramz sawtii</i> <i>3-silsilah</i>

				<i>muta'aaqibah</i>
Pictogram	<i>ramz ṭswiirii</i>	<i>al-ramz al-ṭswiirii</i>	<i>hijaa' ṭswiirii</i>	<i>ramz suwarii</i>
Syllabogram	<i>ramz maqti'ii</i>	<i>ramz al-maqta'</i>	<i>'alaamah maqti'iyyah</i>	<i>ramz maqti'ii</i>

The above translation equivalents reveal that the terms of this set are either translated or transferred through direct borrowing. In the translated terms, -gram is given three translation equivalents: (i) *ramz*, such as *ramz kitaabii* for 'phonogram', *ramz ṭswiirii* for 'pictogram' (cf. al-Khuulii, 1982), *ramz al-maqta'* for 'syllabogram' (cf. Bakalla et al, 1983), and *ramz kalimii* for 'logogram' (cf. al-B'albakii, 1990), (ii) *'alaamah*, such as *'alaamah maqti'iyyah* for 'syllabogram' (cf. ALECSO, 1989) and (iii) *hijaa'* or *tahji'ah*, such as *hijaa' sawtii* for 'phonogram', *hijaa' ṭswiirii* for 'pictogram', *tahji'ah lughawiyyah* for 'logogram' and *tahji'ah tamthiiliyyah* for 'ideogram' (cf. ALECSO, 1989). The two Arabic terms of *ramz* and *'alaamah* are denotatively satisfactory as they can semantically convey the sense of 'symbolic representation' as denoted by -gram in this set of terms. However, only one of these two terms should be employed consistently in order to maintain formal consistency, for which *ramz* is likely to be more suitable as it is more established in this sense in Arabic than *'alaamah*. *Hijaa'* and *tahji'ah*, on the other hand, are denotatively imprecise because spelling is not one of the semantic components of the concept of 'symbolic representation' denoted by -gram in these terms, as has already been maintained in the case of the synonymously related -graph derivatives of the same base (cf. 5.1).

The sense of "a series of graphic signs representing similar sounds in different words" (Hartmann and Stork, 1972: 174) expressed by 'phonogram' in this set is only identified by al-B'albakii (1990) for which he uses *silsilah muta'aaqibah*. This translation is semantically inadequate because it does not properly specify the entity denoted by 'phonogram' in the above sense. If the concept of 'phonogram' is analysed intensionally, the following constituent components can be identified: (i) a

series, (ii) graphic signs, (iii) representation of similar things and (iv) sounds. In the above translation equivalent, *silsilah* represents (i) and *muta‘aaqibah* represents (iii), but how can we recover (ii) and (iv), which are two essential components of this concept? If ‘phonogram’ is translated first literally as *rumuuz sawtiyyah muta‘aaqibah* and then contracted structurally and semantically into *muta‘aaqibaat sawtiyyah*, the resultant abstractive translation equivalent can still be denotatively plausible in addition to being more concise.

Finally, the direct borrowings *al-fuunukraam* for ‘phonogram’, *lukukraam* for ‘logogram’, *al-‘idyukraam* for ‘ideogram’ (cf. Bakalla et al, 1983) and *lughughraam* for ‘logogram’ (cf. al-Khuulii, 1982) can be replaced by translations using the term *ramz* in the same way the other terms are translated without any semantic loss. The conceptual breaks caused by these intransparent direct borrowings will be eliminated by the employment of *ramz*-based translations.

3- The translation equivalents for the concept of ‘a trace of some thing’:

Table no. (5.3.3)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Engram	-	-	<i>intibaa‘ah</i>	<i>‘athar mukhallaf</i>

The above two translation equivalents prposed by ALECSO (1989) and al-B‘albakii (1990) are semantically defective because they do not fully identify the entity denoted by ‘engram’, which is intensionally specified as

“a memory trace of a sound, word or syntactic rule, imprinted and stored in the human brain” (Hartmann and Stork, 1972: 77).

In other words, only the semantic component of ‘trace’ is represented in two different ways in the above translations leaving out the other essential semantic component

represented by the premodifier ‘memory’, which semantically specifies the type and location of the ‘trace’. To accommodate the above two semantic elements of ‘trace’ and ‘memory’, ‘engram’ can be translated as *intibaa’* or *irtisaam dhaakirii*, thus the above specified entity is properly represented in Arabic.

4- The translation equivalents for the set of terms denoting ‘a picture or photograph of some thing’:

Table no. (5.3.4)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Glossogram	<i>rasm al-lisaan</i>	-	<i>hanakiyyah</i>	<i>rasm al-lisaan</i>
Linguagram	<i>rasm al-lisaan</i>	<i>rasm al-lisaan</i>	<i>rasm al-lisaan</i>	<i>rasm lisaanii</i>
Palatogram	<i>rasm al-hanak</i>	-	<i>hanakiyyah</i> + <i>rasm hanakii</i>	<i>rasm ghaarii</i>

The four Arab terminographers use *rasm* to translate -gram in the above set of terms, and ALECSO (1989) also employs the Arabic suffix -*iyah* to produce *hanakiyyah* for ‘glossogram’ and ‘palatogram’. Before we discuss the plausibility of these translation equivalents from the terminological point of view, it is worth pointing out that according to Hartmann and Stork (1972: 161), ‘glossogram’ and ‘palatogram’ are synonyms and can either be a

“drawing, photograph, or actual impression of the points of contact of the tongue on the palate during the articulation of a speech sound”.

‘Linguagram’, on the other hand, is defined as

“a photograph of the tongue showing which parts of it have been coloured by contact with the colouring matter applied to the roof of the mouth during a traditional kind of palatography”. (Trask, 1996: 208)

In other words, and according to the above definitions, ‘glossogram’ and ‘palatogram’ are palate-based and can be one of three things: (a) a drawing, (b) a photograph or (c) an actual impression, while ‘linguagram’ is tongue-based and is a photograph. Based on this, -gram in ‘glossogram’ and ‘palatogram’ can be translated as *rasm* in sense (a), *suurah* in sense (b) and also *rasm* in sense (c). Although the forms of *rasm* in (a) and (b) are formally identical, semantically they are not. In sense (a), *rasm* is ‘a drawing produced by the specialist representing the points of contact of the tongue on the palate’, while in sense (c) *rasm* is ‘the mark or trace left by the tongue on the palate during articulation’. To go back to the above translation equivalents, it is clear from the explanations given by al-Khuulii (1982) and al-B‘albaki (1990) under the entry of ‘glossogram’ that the form *rasm* they use is intended in sense (a), i.e., ‘a drawing produced by the specialist to represent the points of contact between the tongue and the palate’. It is also clear from the above table that -gram in the sense of ‘photograph’ is not represented at all by any of the terminographers even in translating ‘linguagram’, which is defined in English as ‘a photograph’.

The Arabic syntagma *hanakiyyah* used by ALECSO (1989) for ‘glossogram’ and ‘palatogram’ is semantically lacking due to the fact that it does not denote the same entity denoted in English by ‘glossogram’ and ‘palatogram’. The Arabic suffix -*iyah*, as has already been pointed out, is employed in Arabic to form derivatives that denote ‘a state or condition of a quality, or a movement, theory or a school of thought’, and none of these senses is denoted by ‘glossogram’ or ‘palatogram’. The strong desire to produce one-word equivalents in Arabic is apparently the motive behind such an instance of mistranslation.

5- The translation equivalents for the set of terms denoting ‘an output of an instrument of graphic representation’:

Table no. (5.3.5)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990
Electrolaryngogram	-	-	-	-
Electromyogram	-	-	<i>mi'daaliyyah</i>	<i>suurah 'adaliyyah kahrabaa'iyyah</i>
Electropalatogram	-	-	-	-
Glossogram	<i>rasm al-lisaan</i>	-	<i>hanakiyyah</i>	<i>rasm al-lisaan</i>
Phonogram	<i>rasm al-sawt</i>	-	<i>hijaa' sawtii</i>	<i>rasm sawtii</i>
Oscillogram	<i>rasm al-dhabdhabaat</i>	<i>rasm al-dhabdhabaat</i>	<i>mihzaaziyyah</i>	<i>rasm dhabdhabii</i>
Sound spectrogram	<i>rasm al-sawt</i>	<i>al-suurah al-tayfiyyah</i>	<i>suurah tayfiyyah</i>	<i>suurah sawtiyyah</i>
Sonogram	-	<i>al-suurah al-tayfiyyah</i>	<i>tayfiyyah</i>	<i>suurah sawtiyyah</i>

In translating -gram in this set of terms, the Arab terminographers employ two lexical and one morphological device(s). The first lexical device is *rasm* as in *rasm al-lisaan* for 'glossogram', *rasm al-sawt* for 'phonogram' (cf. al-Khuulii, 1982), *rasm al-dhabdhabaat* for 'oscillogram' (cf. Bakalla et al, 1983) and *rasm sawtii* for 'phonogram' (al-B'albakii, 1990). The second lexical device is *suurah* or *al-suurah* as in *al-suurah al-tayfiyyah* for 'sound spectrogram' and 'sonogram' (cf. Bakalla et al, 1983), *suurah tayfiyyah* for 'sound spectrogram' (cf. ALECSO, 1989) and *suurah 'adaliyyah kahrabaa'iyyah* for 'electromyogram' (al-B'albakii, 1990). The morphological device consists in the employment of the Arabic suffix *-iyyah* to produce one-word equivalents such as *mi'daaliyyah* for 'electromyogram', *mihzaaziyyah* for 'oscillogram' and *tayfiyyah* for 'sonogram'. (cf. ALECSO, 1989). Thus, the use of three devices for rendering -gram in this sense has resulted in semantic and formal inconsistency in the translation equivalents given by Bakalla et al (1983), ALECSO (1989) and al-B'albakii (1990). Only al-Khuulii (1982) uses *rasm* consistently in translating -gram in this set of terms.

It has already been pointed out that *rasm* is formed by the morphological pattern *FA'L*, which denotes 'the product of the action' expressed by the underlying verb; therefore, it is denotatively accurate in respect of translating -gram in this sense. It is also pragmatically suitable because *mirsamah* (the instrument of graphic representation) entails *rasm*, which, in turn, presupposes *mirsamah*. The Arabic term *suurah* can mean, among other things, 'a photograph', 'a drawing', 'a description', 'an appearance' and 'a representation'. If *suurah* in the above translation equivalents is used in the sense of 'photograph', it is denotatively inaccurate because photography is not involved in producing the entities denoted by the -gram derivatives in this set of terms. If, on the other hand, *suurah* is used in one of the other senses, it can be acceptable from the denotative point of view, but in the above dictionaries it is not clear which sense is intended. Regardless of the acceptability of *suurah* in this context, using *rasm* is much more appropriate for the sake of achieving semantic and formal consistency, as well as maintaining the logical relationship between the instrument used, its outputs and the technique in which they are used. This conceptually important logical relationship can be lost in the TL if consistency is not achieved in the TL equivalents. Al-B'albakii (1990), for example, uses *mirsamah* for 'electromyograph', *rasm* for 'electromyography', but *suurah* for 'electromyogram', and the same is also adopted in rendering 'spectrograph/spectrogram, and 'sonograph/sonogram'. Such inconsistency is normally rejected in terminology formation because it disrupts the conceptual relations between semantically related terms and, therefore, negatively affects conceptualization.

Finally, the above one-word translation equivalents proposed by ALECSO (1989) through the employment of the Arabic suffix *-iyyah* are semantically defective due to the incorrect use of the suffix in this context, as has already been demonstrated above. It is worth pointing out that in the dictionary itself and, it is likely, in recognition of the semantic abnormality of these formations in Arabic, the *-iyyah* derivative, in most cases, is complemented or supported by an explanatory phrase which can serve as the translation equivalent for the translated term. In translating

‘glossogram’, *hanakiyyah* is complemented by *rasm hanakii*; in translating ‘oscillogram’, *mihzaaziyyah* is complemented by *rasm al-dhabdhabaat*; and in translating ‘sonogram’ *tayfiyyah* is complemented by *rasm al-sawt al-tayfii*.

6- The translation equivalents for the set of terms denoting ‘an output of an instrument of measuring’:

Table no. (5.3.6)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Audiogram	<i>rasm al-sam‘</i>	-	<i>mismaa‘iyyah</i>	<i>rasm al-sam‘</i>
Electrokymogram	-	-	<i>mimwaajiyyah</i> ¹	<i>suurah sam‘iyyah kahrabaa‘iyyah</i>
Glottogram	-	-	-	-

Despite the fact that -gram in this set of terms denotes ‘an output of an instrument of measuring’, none of the above translation equivalents is related to the concept of measuring. This is probably due to overlapping between the graph produced by an instrument of graphic representation and that produced by an instrument of measuring. The decisive factor is, undoubtedly, the main function of the instrument. If the main function of the instrument is to represent graphically, then the output is *rasm*, and if its main function is to measure, then the output is *qiyaas*. The misleading point is that some outputs of some instruments of measuring are produced in the form of a graph such as ‘audiogram’, but the graph in such cases does not represent the thing measured but its measurement. In other words, the graph is the given measurement of the thing measured but not the graphic representation of that thing, as is the case in ‘glossogram’ and ‘sound spectrogram’, for example. It is true that a graph produced by an instrument of measuring can be called *rasm*, but to be denotatively precise it has to be qualified in order not to be misleading. In translating ‘audiogram’, for example, *rasm al-sam‘* given by al-Khuulii (1982) and al-B‘albakii (1990) is semantically inadequate because the produced graph for which *rasm* is used

¹ This translation equivalent is given for ‘kymogram’.

is not ‘a graphic representation of hearing’, but ‘of the measurement of the sensitivity of hearing’. To denote the latter, *rasm* has to be qualified thus: *rasm qiyaas hasaasiyat al-sam*‘ (the graphic representation of the sensitivity of hearing). Unfortunately, this is a precise but very lengthy translation equivalent. In addition to this, using the term *rasm* for translating -gram in this set of terms results in the problem of lack of formal consistency between the translation equivalents given to these terms and the -graph or -meter derivatives of the same base denoting an instrument of measuring. This is actually the case in al-Khuulii (1982) where ‘audiogram’ is rendered as *rasm al-sam*‘ and ‘audiometer’ as *miqyaas al-sam*‘.

The term *suurah* employed by al-B‘albakkii (1990) in translating -gram in ‘electrokymogram’ is also imprecise and misleading denotatively and pragmatically. It is imprecise because ‘electrokymograph’ is the instrument used to

“**measure**¹, record and display the velocity and volume-velocity or air flow through the mouth and the nose” (Trask, 1996: 128, under *electrokymography*),

but not to ‘photograph’ or picture’ the velocity and volume-velocity or air flow’. Therefore, the output is the given *measurement* of the above measured things not their photograph or picture; hence, in Arabic, it is *qiyaas* not *suurah*. Using the term *suurah* in translating ‘electrokymogram’ is misleading because logically, the Arabic reader would conceptualize the producer of an electrokymogram as an instrument whose function is to photograph or picture, but not to measure, which is the actual function, and the technique in which it is used as one whose objective is to photograph or picture, but not to measure, which is the actual objective. In addition to the defectiveness of *suurah*, the translation equivalent *suurah sam‘iyyah kahrabaa’iyyah* given by al-B‘albakkii (1990) to ‘electrokymogram’ is also inaccurate in terms of translating the morphological unit -kymo-, which represents the Greek root *kumo*, meaning wave (NSOED). In this translation, -kymo- is translated as *sam‘iyyah* (of or pertaining to audition or hearing), while, according to the

¹ Emphasis added in bold.

definitions of ‘electrokymograph’ and ‘electrokymogram’, it is the *velocity or air flow during speech production* that is involved, but not hearing. As a matter of fact, the terminographer himself defines ‘electrokymograph’ as

“*aalat tasjiil al-taghayuraat al-haasilah fii al-jarayaan al-famawii wa al-’anfii lilhawaa’ khilaala nutq al-’aswaat al-kalaamiyyah*”.
(al-B‘albakii, 1990)¹

He also defines ‘electrokymography’ as

“*tasjiil al-taghayuraat al-haasilah fii al-jarayaan al-famawii wa al-’anfii lilhawaa’ khilaala nutq al-’aswaat al-kalaamiyyah biwaasitat al-mirsamah al-sam’iyyah al-kahrabaa’iyyah*”. (Ibid)²

Consequently, and based on my translation of ‘electrokymograph’ as *miqyaas al-tadaffuq al-hawaa’ii* (cf. 5.1) and ‘electrokymography’ as *qiyaas al-tadaffuq al-hawaa’ii* (cf. 4.2), ‘electrokymogram’ could be translated as *qiyaas al-tadaffuq al-hawaa’ii*, with *qiyaas* being used in the sense of ‘output or product’ not process.

Finally, the translation equivalents *mismaa’iyyah* for ‘audigram’ and *mimwaajiyyah* for ‘electrokymogram’ proposed by ALECSO (1989) are denotatively inaccurate and misleading due to the incorrect use of the Arabic suffix *-iyyah* as explained above.

Based on the above semantic classification of the entities denoted by *-gram* derivatives, and following this critical review of the translation equivalents given by the Arab terminographers, the following conclusions are made:

¹ This translates as: an instrument for recording variations in the air flow through the mouth and the nose during the articulation of speech sounds.

² This translates as: the recording of variations in the air flow through the mouth and the nose during the articulation of speech sounds using an electrokymograph.

1--gram in the derivatives denoting 'some thing composed or written in a special way' can only be translated individually and no consistency can be achieved in Arabic as each -gram derivative of this group denotes a semantically unique entity. The translation equivalents suggested for these -gram derivatives are as follows:

anagram	<i>mujaanisah taqliibiyyah</i>
chronogram	<i>mu'arrikhah jummaliyyah</i>
cryptogram	<i>kitaabah sirriyyah</i> <i>kitaabah mushaffarah</i>
epigram	1- 'ibaarah manquushah 2- mul <u>h</u> ah shi'riyyah 3- <u>h</u> ikmah
homogram	<i>mumaathilah 'imlaa'iyyah/hijaa'iyyah</i>
lipogram	<i>manquu<u>s</u> al-<u>h</u>arf</i>
pangram	<i>shaamilah abjadiyyah</i> <i>shaamilah <u>h</u>arfiiyyah</i>
petrogram	<i>naqsh <u>h</u>ajarii</i>

2- -gram in the set of terms denoting 'a symbolic representation' can be consistently translated into Arabic as *ramz* with the exception of 'phonogram' in the sense of 'a series of graphic signs representing similar sounds in different words', as follows:

ideogram	<i>ramz iy<u>h</u>aa'ii</i>
logogram	<i>ramz kalimii/laf<u>z</u>ii</i>
phonogram	1- <i>ramz <u>s</u>awtii</i> 2- <i>muta'aaqibaat <u>s</u>awtiyyah</i>
pictogram	<i>ramz ta<u>s</u>wiirii</i>
syllabogram	<i>ramz ma<u>q</u>ti'ii</i>

3- In the term denoting 'a trace of some thing', -gram is translated as *intibaa'* or *irtisaam* as follows:

engram

intibaa'irtisaam dhaakirii

4- In the set of terms denoting 'a picture or photograph of some thing' -gram is translated as *suurah* or *rasm* as follows:

glossogram	<i>rasm al-lisaan</i>
linguagram	<i>suurat al-lisaan</i>
palatogram	<i>rasm al-hanak</i>

5- -gram in the set of terms denoting 'an output of an instrument of graphic representation' is translated as *rasm*, thus maintaining the semantic relationships with the -graph derivatives of the same base denoting an instrument of graphic representation and with the -graphy derivatives of the same base denoting an instrumental technique of graphic representation. The suggested translation equivalents are as follows:

electrolaryngogram	<i>rasm al-hanjarah (al-kahrabaa'ii)</i> <i>rasm hanjarii</i> <i>rasm al-hibaal al-sawtiyyah (al-kahrabaa'ii)</i>
electromyogram	<i>rasm al-'adalaat (al-kahrabaa'ii)</i> <i>rasm 'adalii</i>
electropalatogram	<i>rasm al-hanak (al-kahrabaa'ii)</i> <i>rasm hanakii</i>
glossogram	<i>rasm al-lisaan</i> <i>rasm lisaanii</i>
phonogram	<i>rasm al-sawt</i> <i>rasm sawtii</i>
oscillogram	<i>rasm al-dhabdhabaat</i> <i>rasm dhabdhabii</i>
sound spectrogram	<i>rasm al-tahliil al-sawtii</i>

	<i>rasm ṣawtii taḥliilii</i>
sonogram	<i>rasm al-taḥlīl al-ṣawtii</i>
	<i>rasm ṣawtii taḥliilii</i>

6- Finally, -gram in the derivatives denoting ‘an output of an instrument of measuring’ is translated as *qiyaas*. This translation equivalent reflects the semantic relationships holding between these -gram derivatives and -graph or -meter derivatives of the same base denoting an instrument of measuring, and -graphy or -metry derivatives of the same base denoting an instrumental technique of measuring. The suggested translation equivalents are:

audiogram	<i>qiyaas al-sam‘</i>
electrokymogram	<i>qiyaas al-tadaffuq al-hawaa’ii</i>
glottogram	<i>qiyaas al-mizmaar</i>

Chapter VI

Translating the suffixes -logy and -ics

6.1 -logy

Etymologically, this suffix is from French *-logie* or medieval Latin *-logia* from Greek *logos*, meaning 'word or reason'. Originally, it was an ending in words adapted from Greek such as 'theology' (OED). According to the NSOED, this suffix is employed in English to form nouns with the senses (1) 'discourse' such as 'tetralogy' and 'trilogy', (2) 'a characteristic of speech or language', such as 'battology', 'cacology', 'tautology', etc. and (3) 'a subject of study or interest, or a branch of knowledge'- in the latter sense usually with -o-, such as 'archaeology', 'geology', and 'zoology'.

Before we discuss the technical use of this suffix in linguistics, it is worth pointing out that morpho-etymologically the linguistic technical terms ending in -logy, or -ology, are either (1) words adopted from Latin, French and German, or (2) derivatives formed in English through the employment of the above suffix. Terms of the first type include:

amphibology	Old French <i>amphibologie</i> from late Latin <i>amphibologia</i>
analogy	French <i>analogie</i> or Latin <i>analogia</i>
brachylogy	late Latin <i>brachylogia</i> from Greek <i>brakhulogia</i>
chirology	French <i>chirologie</i>
etymology	Old French <i>etymologie</i> from Latin <i>etimologia</i>
narratology	French <i>narratologie</i>
philology	French <i>philologie</i> from Latin <i>philologia</i>
semasiology	German <i>semasiologie</i> from Greek <i>semasia</i>
tautology	Late Latin <i>tautologia</i>
terminology	German <i>terminologie</i> from Latin <i>terminus</i>

Terms of the second type can be divided morphologically into four pattern types as follows:

- | | |
|------------------------------|---|
| 1- Full word + -ology: | accentology, alphabetology, characterology, dialectology |
| 2- Combining form + -logy: | acrology, audiology, cacology, cryptology, dachtylology, haplogy, laryngology, morphology, onomatology, phonology, semology, tonology, typology |
| 3- Contracted word + -ology: | aphasiology, (aphasi(a) + -ology)
translatology (translat(e) + -ology) |
| 4- Greek root(s) + -ology: | grammatology (Gk. <i>gramma/grammatos</i> (letter) + -ology)
lexicology (Gk. <i>lexico-</i> + logy)
onomasiology (Gk. <i>onomasia</i> (name) + -ology)
pasimology (Gk. <i>pasi</i> (for all) + Gk. <i>sema</i> (sign) + -ology)
rhematology (Gk. <i>rhema, -atos</i> (that which is said, word, saying) + -ology)
sematology (Gk. <i>semat, sema</i> (sign) + -ology)
semiology (Gk. <i>semein</i> (sign) + -ology) |

Technically in linguistics, the above suffix has at least seven intensionally and extensionally distinct senses as can be seen from the following semantic classification of the linguistic terms ending in -logy or -ology:

- 1- A subject of study or branch of knowledge:

accentology	the systematic study of stress
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alphabetology	the study of alphabetic writing
aphasiology	the study of aphasia
audiology	the study of hearing and hearing disorders
chirology	the study of sign language
cryptology	the study of how secret messages are constructed
dialectology	the branch of linguistics dealing with the distribution of accents and dialects in space and time
etymology	the study of the source and history of words, the changes in their forms and meanings
grammatology	the branch of linguistics that studies the nature of writing and writing systems
graphology	1- the linguistic study of writing systems using analogous techniques to those devised for phonology 2- the study and interpretation of handwriting
laryngology	the study of the anatomy, physiology and diseases of the larynx
lexicology	the sub-discipline of linguistics that investigates and describes the structure of the vocabulary of a language
morphology	the study of the structure of words and the categories realized by them
narratology	the theoretical study and analysis of narrative and its structure
onomasiology	the study of sets of associated concepts in relation to the linguistic forms which designate them
onomatology	the study of the origin and meaning of names
pasimology	the study of gestures as a means of communication
philology	1- the traditional historical study of language, especially of written languages in their cultural settings 2- the traditional study of literary texts
phonology	the branch of linguistics that studies the sound systems of individual languages and of the nature of such systems generally

rhematology	the philosophical study of meaning in language
sematology	the theory of the use of signs, especially words, in relation to thought and knowledge
semasiology	the sub-discipline and area of study within semantics that is concerned with the meaning of individual linguistic expressions, the semantic relations between them as well as problems of semantic change
semiology	the theory or science and analysis of signs and sign systems and their meanings, especially those involved with communication between human beings in different societies and cultures
semology	same as semiology
terminology	the study of how technical terms are formed, used and codified
tonology	the phonological study of tones
translatology	the study of translation, subsuming both interpretation of oral discourse and translation of written discourse
typology	the branch of linguistics which studies the structural similarities between languages, regardless of their history

2- A language-related process or its result:

acrology	the process or result of using a graphic sign, which originally represented the initial sound or syllable of a word, as a general alphabetic sign
analogy	the process by which a form is either changed or created in such a way that its relation to another form is like that of pairs of forms whose relationship is similar in meaning
brachylogy	1- the process or result of expressing an idea or proposition in the most concise way possible

	2- a shortened or condensed expression
etymology	the process or result of tracing the history of a word
haplology	1- the morphological process in which one of two consecutive morphs of identical or similar form is dropped 2- the phonological process in which one of two consecutive similar syllables is dropped in speech
typology	the process or result of classifying languages in terms of their structural features

3- A characteristic of speech or language:

amphibology	ambiguity caused by lack of grammatical clarity, in which, especially out of context, a phrase or sentence can be understood in two ways
cacology	a deviation, in speech, from accepted norms in grammar or pronunciation
haplology	the omission in speech of one or more similar sounds in succession
tautology	a kind of semantic anomaly in which an argument or proposition is repeated in the same or different words in the same utterance
brachylogy	formal concision and semantic condensation in an expression

4- A set or collection of linguistic elements or language-related characteristics:

characterology (of speech)

the set of particular characteristics or stylistics of the speech of an individual, including pronunciation, diction, choice of words, etc.

terminology	the set of vocabulary items of a specialized field of enquiry as contrasted with the general vocabulary items of a language
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5- A language-related system or structure:

graphology	the writing system of a language
morphology	1- the morphemic system of a language 2- the morphological structure of a language 3- the form or structure of words
phonology	1- the sound system of a particular language 2- the phonological structure of a word or utterance
semology	in stratificational grammar, the stratum dealing with meaning comprising of two-stratal systems, the semantic and hyper-semantic, dealing respectively with meaning at clause and sentence (or proposition) level and at the level of paragraph and text
terminology	the terminological system of a discipline or sub-discipline

6- A special method, or skill, of expression or communication, or its result:

chirology	the use of sign language as a method of communication
cryptology	secret speech or communication
dactylology	the art of communicating by signs made with the fingers
pasimology	communication by means of gestures

7- A language-related philosophy:

grammatology	the deconstructionist philosophy of writing propagated by Derrida who uses the term 'writing' not only in its
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normal, graphic sense, but also in a Derridean, metaphysical sense to refer to a generalized 'inscription', archi-writing, basic to speech as well, and to language itself. For Derrida, language is basically 'inscribed' in a network of differences: the signification of signs comes as much from what they are not as from what they are.

Some of the above terms are polysemous in the sense of having two or more meanings under the same general sense denoted by the suffix, such as 'graphology' and 'haplology'. Some other terms are polysemous in the sense of the suffix having two or more different senses, such as 'etymology' and 'typology', in which the suffix denotes (1) a process or its result and (2) a subject of study or branch of knowledge, 'graphology', 'morphology' and 'phonology', in which the suffix denotes (1) a system or structure' and (2) a subject of study or branch of knowledge', and 'terminology', in which the suffix denotes (1) a set or collection, (2) a system or structure and (3) a subject of study or branch of knowledge.

Some of the above semantically classified terms also have correlative synonymous derivatives in -ics, such as

graphology	graphetics
rhematology	rhematics
semiology	semiotics

In some other terms, in which the suffix denotes 'a subject of study or branch of knowledge', the -ology derivative has a correlative -ics derivative, but in this case the -ology derivative is semantically assigned to 'the study of the general linguistic properties of whatever denoted by the base to which -ology is appended', while the -ics derivative is assigned to 'the study of the phonetic (or material) properties of whatever denoted by the base to which -ics is appended', as can be seen from the following list:

phonology	the study of semantically relevant speech sounds (phonemes) and their pertinent characteristics, relations, and systems viewed systematically and diachronically
phonetics	the study of the material aspect of speech sounds
tonology	the study of the forms and uses of tone in language, or the phonological study of tones
tonetics	the study of the phonetic properties of tones

Many of the above semantically classified -logy derivatives have actual or potential morphologically and semantically related derivatives that express semantically and syntactically motivated concepts, as can be exemplified by the following list:

amphipology	amphipological
analogy	analogical, analogically, analogist
audiology	audiological, audiologist
dialectology	dialectological, dialectologist
etymology	etymological, etymologically, etymologist
graphology	graphological, graphologically, graphologist
lexicology	lexicological, lexicologically, lexicologist
morphology	morphological, morphologically, morphologist
onomasiology	onomasiological, onomasiologist
philology	philological, philologist, philologically, philologist
phonology	phonological, phonologically, phonologist, phonologization
terminology	terminological, terminologically, terminologist, terminologization

In terminological translation, the above morphologically and semantically related terms have to be taken into consideration when translating the related -logy

derivatives in order to maintain formal and conceptual relationships between the two sets of terms.

Before we discuss the translations given by Arab terminographers to the above semantically classified -logy derivatives, it would be helpful to explore how the above concepts denoted by this suffix are normally expressed in Arabic.

1- It has already been mentioned (cf. 5.2) that the concept of 'subject of study or branch of knowledge' is referred to either through the employment of lexical items such as *diraasah* (study), *'ilm* (science) or *fann* (discipline), or through the employment of the name of the subject of study or branch of knowledge. In modern times, however, and especially in the light of the cultural encounter between Arabic and European languages, new ways have been introduced by Arab translators and terminologists in expressing the concept of 'subject of study or branch of knowledge'. These new ways include the employment of the terminations -yaa' and -yaat to avoid the use of long periphrastic expressions. The termination -yaa' is found in names of sciences such as *kiimyaa'* (chemistry) and *fiizyaa'* (physics). This termination, however, has not so far been productive (Ali, 1987: 53-54). The termination -yaat is found in terms such as *al-riyaadiyaat* (mathematics), *al-lisaniyaat* (linguistics), *al-sawtiyaat* (phonetics), *al-'adabiyaat* (literary studies), *al-'islaamiyaat* (Islamic studies), etc. This termination seems to be productive in modern Arabic, especially in translating the European terms formed by the two suffixes -ics and -ique. Some translators have even gone beyond that to produce hybrid terms such as *fikruluujyaa* (ideology), *usturuluujyaa* (mythology) and *kaa'inluujyaa* (ontology), which are based on the direct borrowing and naturalization of the European suffix and translation of the base to which the suffix is appended. (al-Shihaabii, 1965:361, 362). This method of terminological expression has not gained currency among Arab translators and terminologists due to the fact that it is not one of the natural methods of word-formation in Arabic as contrasted with European languages such as French and English.

2- The concept of 'a language-related process or its result', as has already been explained under the discussion of -ization, is normally expressed through the employment of *maṣḍar* patterns such as *FI'AAL* in *qiyaas* (analogy) and *TAF'IIL* in *ta'thiil* (etymology), etc. (cf. 3.2).

3- The concept of 'a characteristic of speech or language' is expressed by full lexical words formed by *maṣḍar* patterns to denote a resultant state, condition or quality, such as *labs* (ambiguity), *'iyjaaz* (concision), *itnaab* (redundancy) and *lahn* (cacology).

4- The concept of 'a set or collection of linguistic elements or language-related characteristics' is normally expressed by the termination *-aat* denoting the feminine plural as in *istilahaat* (a set or collection of technical terms), *mufradaat* (a set or collection of lexical items), *mutaraadifaat* (a set or collection of synonyms), *mu'arrabaat* (a set or collection of arabized words) and *manhutaat* (a set or collection of words formed through blending).

5- The concepts of 'system and structure' are expressed by full words such as *nizaam* and *manzuumah* for 'system', and *binyah* and *binaa* for 'structure'.

6- The concept of 'a special method or skill of expression or communication, or its result' is normally expressed by full words formed by *maṣḍar* patterns denoting the recurrent action or process of whatever denoted by the underlying verb, or its result, such as *IF 'AAL* and *FA'L* in *al-'iymaa* and *al-ramz* respectively.

7. The concept of 'a language-related philosophy' is expressed through compounding in which the already naturalized term *falsafah* is employed as a compound head, as in *falsafat al-lughah* (the philosophy of language), *falsafat al-kitaabah* (the philosophy of writing), etc. In modern times, when the sense of philosophy is used to represent a theory or movement the *maṣḍar* *ṣinaa'ii* pattern is employed as in *al-ramziyyah* (symbolism) and *al-ta'biiriyyah* (expressionism).

Following the above review of the origin, general use in English and technical use in linguistics of the suffix -logy, and following the exploration of the ways in which Arabic normally expresses the above concepts denoted by this suffix in English, let us discuss the translation equivalents given by four Arab terminographers to the above sets of semantically classified linguistic terms formed by this suffix:

1- The translation equivalents for the set of terms denoting ‘a subject of study or branch of knowledge’:

Table no. (6.1.1)

SL terms	al-Khuulii 1982	ALECSO 1989	Al-B‘albakii 1990	Mubaarak 1995
Accentology	<i>diraasat al-nnabiraat</i>	<i>‘ilm al-nnabr</i>	<i>‘ilm al-nnabr</i>	-
Alphabetology	<i>diraasat al-kitaabaat al-hijaa’iyyah</i>	-	<i>diraasat al-kitaabaat al-‘alifbaa’iyyah</i>	-
Aphasiology	-	-	<i>hibaasah</i>	-
Audiology	-	<i>al-sam‘iyaat</i>	<i>sam‘iyaat</i>	-
Chirology	-	-	<i>‘ilm al-‘iymaa’</i>	-
Cryptology	-	-	<i>diraasat al-mushaffaraat</i>	-
Dialectology	<i>‘ilm al-lahajaat + diraasat al-lahajaat</i>	<i>‘ilm al-lahajaat</i>	<i>diraasat al-lahajaat</i>	<i>‘ilm al-lahajaat</i>
Etymology	<i>‘ilm ‘u<u>ṣ</u>uul al-kalimaat + ‘ilm al-‘u<u>ṣ</u>uul + ‘ilm ta’<u>ṣ</u>iil al-kalimaat</i>	<i>‘ilm ta’<u>ṣ</u>iil al-kalimaat</i>	<i>‘ilm al-ta’thiil</i>	<i>‘ilm al-ta’thiil + ‘ilm ‘u<u>ṣ</u>uul al-kalimaat</i>
Grammatology	<i>diraasat al-khu<u>ṭ</u>uu<u>ṭ</u></i>	<i>‘ilm al-kitaabah al-wa<u>ḡ</u>iifii</i>	<i>khi<u>ṭ</u>aa<u>ṭ</u>ah ‘aammah</i>	-
Graphology	<i>diraasat al-khatt</i>	<i>khi<u>ṭ</u>aa<u>ṭ</u>ah</i>	<i>khi<u>ṭ</u>aa<u>ṭ</u>ah khaa<u>ṣ</u>sah</i>	<i>diraasat al-khatt</i>
Larynglogy	-	-	<i>‘ilm ‘amraa<u>ḍ</u></i>	-

			<i>al-ḥanjarah</i>	
Lexicology	'ilm al-mufradaat	<i>diraasat al-mufradaat</i>	'ilm al-mufradaat	'ilm al-mufradaat
Morphology	'ilm al-ṣarf	'ilm al-ṣarf	'ilm al-ṣarf	'ilm al-ṣarf
Narratology	-	-	-	-
Onomasiology	<i>diraasat al-'a'laam</i>	'ilm al-ma'aanii <i>ghayr al-lafzii</i>	1- 'asmaa'iyyah 2- musammayaati- yyah	'ilm ma'aanii 'asmaa' al-'alam
Onomatology	<i>diraasat al-'a'laam</i>	<i>diraasat al-'a'laam</i>	'asmaa'iyyah	-
Pasimology	<i>ittiṣaal 'ishaarii</i>	<i>nizaam al-ittiṣaal bi al-'ishaaraat</i>	<i>tawaasul 'iymaa'ii</i>	-
Philology	1- <i>fiqh al-lughah</i> 2- 'ilm al-lughah 3- 'ilm al-nuṣuṣ <i>al-qadiimah</i>	<i>Fiqh al-lughah</i>	1- <i>fiqh al-lughah</i> 2- 'ilm al-nuṣuṣ <i>al-qadiimah</i>	1- <i>fiqh al-lughah</i> 2- 'ilm al-nuṣuṣ <i>al-qadiimah</i>
Phonology	1- 'ilm al-funimaat 2- 'ilm al-'aṣwaat 3- 'ilm al-'aṣwaat <i>al-ta'riikhii</i>	<i>al-ṣawtiyaat al-waṣṣiifiyyah</i>	'ilm <i>wazaa'if al-'aṣwaat</i> + <i>funuluujiyaa</i>	'ilm <i>al-ṣawt al-waṣṣiifii</i>
Rhematology	'ilm <i>al-dilaalah al-falsafii</i>	-	'ilm <i>al-dilaalah al-falsafii</i>	-
Semasiology	'ilm <i>al-dilaalah</i> + 'ilm <i>al-ma'aanii</i>	'ilm <i>al-ma'aanii al-lafzii</i>	'ilm <i>al-dilaalah</i>	'ilm <i>al-ma'aanii 'aw al-dilaalah</i>
Sematology	'ilm <i>al-dilaalah</i> + 'ilm <i>al-ma'aanii</i>	-	'ilm <i>al-dilaalah</i>	'ilm <i>al-dilaalah</i>
Semiology	'ilm <i>al-rumuuz</i>	1- 'ilm <i>al-'adillah</i> 2- 'ilm <i>al-simyaa'</i>	'ilm <i>al-simyaa'</i>	'ilm <i>al-rumuuz</i> + <i>al-rumuuziyyah</i>
Semology	'ilm <i>al-rumuuz</i>	-	'ilm <i>al-dilaalah</i>	-
Terminology	<i>muṣṭalaḥaat fanniyyah</i>	<i>al-muṣṭalaḥiyyah</i> + 'ilm <i>al-muṣṭalaḥaat</i>	<i>muṣṭalaḥiyyah</i>	'ilm <i>al-muṣṭalaḥaat</i>
Tonology	-	-	-	-
Translatology	-	-	-	-
Typology	-	<i>al-taṣniifiyyah</i>	<i>taṣniif naw'ii</i>	'ilm <i>al-naw'</i>

The above table shows that some of the terms in this set are not included by any of the above terminographers, and other terms are only included by some of them. A number of the above terms are not identified in the sense of 'subject of study or branch of knowledge' by some of the above terminographers such as 'terminology' (cf. al-Khuulii, 1982 and al-B'albakii, 1990), 'typology' (cf. al-B'albakii, 1990) and 'pasimology' (cf. al-Khuulii, 1982, ALECSO, 1989 and al-B'albakii, 1990). A cursory view of the above translation equivalents shows that the concept of 'subject of study or branch of knowledge' is expressed in six different ways, three of which are lexical and the other three are morphological.

First: lexically, the above concept is expressed through the employment of the full lexical items of *diraasah* (study), *'ilm* (science) and *fiqh* (science) to form compound terms as in *diraasat al-lahajaat* for 'accentology', *diraasat al-khuṭuūt* for 'grammatology' (cf. al-Khuulii, 1982), *diraasat al-kitaabah al-'alifbaa'iyyah* for 'alphabetology' (cf. al-B'albakii, 1990) and *diraasat al-mufradaat* for 'lexicology' (cf. ALECSO, 1989), *'ilm 'uṣūl al-kalimaat* for 'etymology', *'ilm al-funimaat* for 'phonology' (cf. al-Khuulii, 1982), *'ilm al-nabr* for 'accentology', *'ilm al-ma'aanii ghayr al-lafẓii* for 'onomasiology' (cf. ALECSO, 1989), *'ilm al-dilaalah* for 'sematology', *'ilm al-nuṣuṣ al-qadiimah* for 'philology' (cf. al-B'albakii, 1990), *'ilm ma'aanii 'asmaa' al-'alam* for 'onomasiology', *'ilm al-mustalahaat* for 'terminology' (cf. Mubaarak, 1995) and *fiqh al-lughah* for 'philology' (cf. al-Khuulii, 1982, ALECSO, 1989, al-B'albakii, 1990 and Mubaarak, 1995). The above examples show that employing three different Arabic lexical devices to render the concept of 'subject of study or branch of knowledge', denoted by -logy in this context has resulted in terminological inconsistency and semantic variation. The translation equivalents containing the term *diraasah* seem to be literal renderings of some of the related concepts as defined in English where the term 'study' is used in constructing the intensional definitions of many of the linguistic technical terms formed by the suffix -logy in this context, as can be seen from the definitions of the following terms:

accentology "the systematic study of stress" (Hartmann and Stork, 1972: 2)

alphabetology “the study of alphabetic writing” (*Ibid*: 11)

graphology “the study of the graphic signs used in a particular language”
(*Ibid*: 100)

onomatology “the study of the origin and meaning of names” (*Ibid*: 157)

In some cases -logy in the same term is translated as *diraasah* by one or two of the above terminographers and as *‘ilm* by another one or two as is the case in ‘accentology’, which is translated as *diraasat al-nabiraat* by al-Khuulii (1982) and *‘ilm al-nabr* by ALECSO (1989) and al-B‘albaki (1990), ‘grammatology’, which is translated as *diraasat al-khuṭuṭ* by al-Khuulii (1982) and *‘ilm al-kitaabah al-waziifii* by ALECSO (1989) and ‘lexicology’, which is translated as *diraasat al-mufradaat* by ALECSO (1989) and *‘ilm al-mufradaat* by al-Khuulii (1982). This variation in translation may be due to variation in the interpretation and conceptualization, by the Arab terminographers, of the related concepts as defined in English. It is true that in this context the term ‘study’ means

“the action of studying; the devotion of time and attention to acquiring information or knowledge, especially of a specified subject” (NSOED)

for which the literal translation *diraasah* is used here by some of the above Arab terminographers. However, for the purpose of terminological abstraction in terminological translation, when the whole process of studying, including its subject of study, facts, objectives and results, is semantically abstracted, the whole idea can be conceived of as ‘a subject of study or branch of knowledge’, for which some other terminographers use the Arabic term *‘ilm*. For this purpose, as well as for formal concision, morphological devices are also used by the above terminographers to produce concise translation equivalents, as shall be discussed later. In Arabic the term *diraasah* gives more immediacy to the literal meaning ‘process of study’ than to the abstracted concept of ‘subject of study or branch of knowledge’. For this reason, the term *‘ilm* is more denotatively adequate than *diraasah* in this context. However, when any of the above -logy derivatives is contextually intended to mean ‘a type of action or process of studying’, then the Arabic term *diraasah* would be denotatively adequate.

The term *fiqh* in Arabic also means '*ilm*', but it has been more frequently used for the branch of knowledge that deals with Islamic *sharii'ah* (law) and jurisprudence. In modern times, it is also employed by Arab philologists and grammarians to translate the term 'philology' as *fiqh al-lughah* in order to indicate the traditional approach in studying language.

So far, we have been discussing the semantic implications of the three Arabic terms *diraasah*, '*ilm*' and *fiqh* in translating -logy in the above sense. In what follows, the morphological and morpho-semantic implications of employing the above three Arabic terms will be considered. As can be seen from the above translation equivalents, using the words *diraasah*, '*ilm*' and *fiqh* to translate -logy in this context has resulted in compounds the shortest of which are made of two words. In some cases, the translation equivalent is composed of three or four words such as *diraasat al-kitaabaat al-'alifbaa'iyyah* for 'alphabetology', '*ilm 'uṣūl al-kalimaat* for 'etymology' (cf. al-Khuulii, 1982), '*ilm al-ma'aanii ghayr al-lafẓii* for 'onomasiology', '*ilm al-kitaabah al-waẓiifii* for 'grammatology' (cf. ALECSO, 1989), '*ilm waẓaa'if al-'aṣwaat* for 'phonology', '*ilm al-dilaalah al-falsafii* for 'rhematology' (cf. al-B'albakii, 1990), '*ilm ma'aanii 'asmaa' al-'alam* for 'onomasiology', and '*ilm al-nuṣuṣ al-qadiimah* for 'philology' (cf. Mubaarak, 1995). Formally, these translation equivalents are lengthy strings of words which are not normally recommended in terminological translation due to the following three facts: (1) pragmatically, they do not allow for speedy communication, (2) morphologically, they are less amenable to further derivation than one-word equivalents, and (3) semantically, they lack the terminological characteristic of 'semantic abstraction or condensation'. The implications of these problems in the above examples are more apparent when translating morphologically and semantically related terms. The term 'phonology', for example, is translated by al-B'albakii (1990) as '*ilm waẓaa'if al-'aṣwaat* and *funuluujyaa*, and by Mubaarak (1995) as '*ilm al-ṣawṭ al-waẓiifii*. Based on these two translations, the related term 'phonologist' can only be translated as '*aalim* or '*akhissaa'ii waẓaa'if al-'aṣwaat* and '*aalim* or '*akhissaa'ii al-ṣawṭ al-waẓiifii* respectively, which also lack formal

concision and semantic condensation. In translating ‘phonologist’, al-B‘albakkii (1990) gives *‘aalim al-funuluujiyaa*, which is a mixture of borrowing and translation. This fluctuation in the employment of translation techniques in translating morphologically and semantically related terms leads to terminological inconsistency and possible misconceptualization as the term ‘phonology’ is used differently by different linguists and linguistic schools and the concept it denotes is defined differently (Trask, 1996: 275-276, Bussmann, 1996: 363 and Crystal, 1999: 290-291). More terminological problems rise when translating related compound terms in which the morphologically and semantically related term ‘phonological’ is employed, such as ‘phonological analysis’, ‘phonological level’ and ‘phonological underlying representation’, especially in contrast with ‘phonetic analysis’, ‘phonetic level’ and ‘phonetic representation’ (Hileil, 1982: 106).¹ This means that the translation of the term ‘phonology’ has to reflect and maintain the difference in meaning between this term and its -ics counterpart ‘phonetics’, as both terms are formed by suffixes denoting, in this context, ‘a subject of study or branch of knowledge’.² In the light of the semantic distinction between ‘phonology’ and ‘phonetics’, most of the Arab terminographers, linguists and translators use *‘ilm al-’aṣwaat* for ‘phonetics’ (cf. al-Khuulii, 1982, al-B‘albakkii, 1990, Mubaarak, 1995, Hassaan, (no date), and Ali, 1993), and some others, such as ALECSO (1989) use *al-ṣawtiyaat*, in which -logy is translated by the Arabic ending -*yaat*. In translating the term ‘phonology’, however, each of the above mentioned terminographers, linguists and translators gives a different translation equivalent as follows:

al-Khuulii (1982)	<i>‘ilm al-funimaat</i>
ALECSO (1989)	<i>al-ṣawtiyaat al-waṣiifiyyah</i>
al-B‘albakkii (1990)	<i>‘ilm waṣṣaa’if al-’aṣwaat + funuluujiyaa</i>
Mubaarak (1995)	<i>‘ilm al-’aṣwaat al-waṣiifi</i>
Hassaan (no date)	<i>‘ilm al-ṣawtiyaat</i>

¹ Hileil (1982: 106-107) argues that to maintain denotative precision and morpho-semantic relatedness, the term ‘phonology’ can only be directly borrowed and arabized as *funuluujiyaa*.

² It is worth pointing out that etymologically, and according to the NSOED, the base in ‘phonology’ is from Greek *phone* meaning ‘sound or voice’, while the base in ‘phonetics’ is from modern Latin *phoneticus* from Greek *phonetikos*, from *phnetos* meaning ‘to be spoken’, a past participle formation on *phonein* meaning ‘speak’ from *phone* meaning ‘sound or voice’.

The semi-unanimity by the above terminographers, linguists and translators in rendering 'phonetics' as '*ilm al-'aṣwaat*', and their outstanding diversity in translating 'phonology' can be attributed to the following facts:

- 1- The term 'phonology' has been more unfortunate in modern linguistics than the term 'phonetics', as the former has been used differently by different linguists and linguistic schools, and therefore, interpreted differently by different Arab terminographers, linguists and translators.
- 2- Chronologically, phonetics as a branch of knowledge is prior to phonology and therefore, as a concept it is very well defined and established, unlike 'phonology', which has been defined differently by different linguists.
- 3- In Arabic linguistics, phonetic studies are also prior to phonological studies and the former are also more established than the latter.

From the point of view of terminological translation, employing the Arabic term '*ilm*' can achieve denotative precision and consistency in translating -logy in this context, but unfortunately it does not achieve concision. The concise translation equivalent *al-siyaatah*, given by Ali (1993) for 'phonology', seems promising since it exhibits both formal concision and semantic condensation. However, this translation equivalent is formed by the morphological pattern *FI'AALAH* denoting *al-hirfah* (trade) the suitability of which for achieving denotative precision and consistency in translating -logy in this context will be discussed more extensively in the following section.

Second: morphologically, the above Arab terminographers employ three morphological devices to express the concept of 'subject of study or branch of knowledge' denoted by the suffix -logy in the above set of terms. These three devices are (1) the suffix -yaat as in *al-sam'iyaat* for 'audiology' (cf. ALECSO,

1989 and al-B‘albakkii, 1990) and *al-ṣawtiyaat al-waḥḥiyyah* for ‘phonology’ (cf. ALECSO, 1989), (2) the suffix *-iyyah* as in *‘asmaa’iyyah* and *musammayaatiyyah* for ‘onomasiology’ (cf. al-B‘albakkii, 1990), *al-mustalahiyyah* for ‘terminology’ and *al-tasniifiyyah* for ‘typology’ (cf. ALECSO, 1989) and (3) the morphological pattern *FI‘AALAH* as in *ḥibaasah* for ‘aphasiology’ (cf. al-B‘albakkii, 1990), *khitaatah* for ‘graphology’ (cf. ALECSO, 1989).

It has already been mentioned (cf. 5.2) that in modern times the suffix *-yaat* has been gaining currency in expressing the concept of ‘subject of study or branch of knowledge’ such as *al-riyaadiyyaat* (mathematics), *al-lisaaniyyaat* or *al-lughawiyyaat* (linguistics), *al-‘islaamiyyaat* (Islamic studies) and *al-‘adabiyyaat* (literary studies). This suffix is apparently an abstraction of the collective concept of ‘closely related studies or sciences’. In Arabic, *-yaat* originally denotes ‘the plural of adjectives which are used as substantives’, hence, *al-lisaaniyyaat* is the plural of *lisaanii* or *lisaaniyyah*, *al-‘adabiyyaat* is the plural of *‘adabii* or *‘adabiyyah*, etc. The related linguistic studies, for example, are collectively designated as *al-lisaaniyyaat* and *al-lughawiyyaat* or *al-‘uluum al-lisaaniyyah* and *al-‘uluum al-lughawiyyah*, which are morphologically contracted and semantically abstracted as *al-lisaaniyyaat* or *al-lughawiyyaat*, and in the same way the rest of the *-yaat* terms are formed and used. This process of morphological contraction and semantic abstraction seems to be very practical and useful for the purpose of forming technical terms in Arabic that fulfil the terminological needs of formal concision and semantic condensation. Accordingly, *-yaat* can be employed to translate *-logy* in the above set of English terms in order to produce formally concise and denotatively precise terms in Arabic, such as *al-nabriyyaat* for ‘accentology’, *al-‘alifbaa’iyyaat* for ‘alphabetology’, *al-‘imaa’iyyaat* or *al-‘ishaariyyaat* for ‘chirology’, *al-lahjiyyaat* for ‘dialectology’, etc.

The suffix *-iyyah*, which forms *al-masdar al-sinaa’ii* in Arabic, as has already been pointed out, does not denote ‘a subject of study or branch of knowledge’, but ‘a state, condition or quality and a theory, movement or school of thought’. The translation equivalent *‘asmaa’iyyah* given by al-B‘albakkii (1990) to ‘onomasiology’ would be understood in Arabic as ‘the state, condition or quality of

being related to '*asmaa*' (names)', but not 'the subject of study or branch of knowledge that deals with names'. Likewise, *al-mustalahiyyah* given by ALECSO (1989) to 'terminology' would be understood as 'the state, condition or quality of being used as *mustalah* (technical term)', but not 'the subject of study or branch of knowledge that deals with technical terms', and the same also applies to *al-tasniifiyyah* given by ALECSO (1989) to 'typology'. Based on this discussion and in order to avert misconceptualization in Arabic, the suffix *-iyyah* is better not used to form or translate terms denoting 'a subject of study or branch of knowledge', but only terms denoting 'a state, condition or quality and a theory, movement or school of thought'.

Finally, the morphological pattern *FI'AALAH* is a practical device for producing concise terms, but it can be denotatively misleading because originally this pattern does not denote 'a subject of study or branch of knowledge', but (1) *hirfah* or *mihnah* (trade), such as *al-kitaabah* (the trade of writing), *al-nijaarah* (carpentry), (2) *waziifah* or *mahammah* (office), such as *sifaarah* (delegation), *niyaabah* (deputization), and (3) *mumaarah* (practice), such as '*ibaadah* (worship). Accordingly, *khiṭa'ah* given to 'grammatology' by al-B'albakii (1990) and to 'graphology' by ALECSO (1989) would mean 'the trade, office or practice of writing' rather than 'the subject of study or branch of knowledge that deals with writing systems or handwriting'. In the same way, *hibaasah* given to 'aphasiology' by al-B'albakii (1990) would be understood as 'the trade or practice of treating aphasia', but not 'the subject of study or branch of knowledge that deals with aphasia'. Likewise, the above mentioned translation equivalent *al-siyaatah* given to 'phonology' by Ali (1993) would also denote 'the trade, office or practice of studying the sound systems of language' rather than 'the subject of study or branch of knowledge that deals with the sound system of languages'. Based on this consideration, the above mentioned translation equivalents formed through the employment of the pattern *FI'AALH* are denotatively inaccurate and misleading unless (1) they are used in compounds wherein the word '*ilm*' is used as a compound head, such as '*ilm al-siyaatah*' for 'phonology', or (2) the suffix *-yaat* is added to them, such as *al-siyaatiyaat*. Another problem related to the pattern *FI'AALH* in this

context is that it cannot be employed to translate all the above -logy derivatives denoting ‘a subject of study or branch of knowledge’ the implication of which will be lack of consistency in rendering the above set of terms.

2- The translation equivalents for the set of terms denoting ‘a language-related process or its result’:

Table no. (6.1.2)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Acrology	<i>kitaabah</i> <i>ṣawtiyyah</i> <i>‘awaa’iliyyah</i>	-	<i>iqṭiṭaa’ hijaa’ii</i>	<i>kitaabah</i> <i>ṣawtiyyah</i> <i>‘awaa’iliyyah</i>
Analogy	<i>qiyaas</i>	<i>qiyaas</i>	<i>qiyaas</i>	<i>qiyaas</i>
Brachylogy	<i>ta’biir mukhtaṣar</i>	<i>ḥadhf ma’luum</i>	<i>mujaz</i>	<i>ta’biir mukhtaṣar</i>
Etymology	<i>ta’riikh</i> <i>al-kalimah</i>	<i>‘ilm ta’ṣiil</i> <i>al-kalimaat</i>	<i>‘ilm al-ta’thiil</i>	<i>‘ilm al-ta’thiil +</i> <i>‘ilm ‘uṣuul</i> <i>al-kalimaat</i>
Haplology	<i>ikhtizaal ṣawtii</i>	<i>ḥadhf ikhtizaalii</i>	<i>1-ifraad ṣawtii</i> <i>2-ifraad kalimii</i>	<i>ḥadhf + isqaat</i>
Typology	-	<i>al-taṣniifiyyah</i>	<i>taṣniif naw‘ii</i>	<i>‘ilm al-naw’</i>

The above table shows that two terms, namely ‘acrology’ and ‘typology’ are not included by some of the terminographers, and some of the included terms are not identified in the sense of ‘a language-related process or its result’ such as ‘etymology’ (cf. ALECSO, 1989, al-B‘albakii, 1990 and Mubaarak, 1995), ‘brachylogy’ (cf. al-B‘albakii, 1990) and ‘typology’ (cf. ALECSO, 1989 and Mubaarak, 1995). Although ‘brachylogy’ is polysemous under the above sense, it is identified in one meaning only by each of the terminographers who identify it in the sense of ‘a language-related process or its result’. In al-Khuulii (1982) and Mubaarak (1995) it is identified in the meaning of

“a shortened or condensed and grammatically incomplete expression, used in colloquial speech or specialized jargons to reduce time and effort” (Hartmann and Stork, 1972: 29),

for which *ta'biir mukhtaṣar* is given, while in ALECSO (1989) it is identified in the meaning of

“expressing some thing in the most concise way possible” (Bussmann, 1996: 57)

for which *ḥadhf ma'luum* is used. The term ‘haplology’, which has two meanings in this context is only identified as polysemous by al-B‘albaki (1990), who uses *ifraad ṣawtii* for the sense of

“the [...] phonological process in which one of two consecutive similar syllables is dropped in speech” (Trask, 1996: 166),

and *ifraad kalimii* for the sense of

“the morphological process in which one of two consecutive morphs of identical or similar form is dropped” *Ibid*: 166)

A quick look at the above table shows that the suffix -logy in this set of terms is translated through the employment of the *maṣḍar pattern* denoting ‘an action, process or its result’, such as *FI‘AALAH* in *kitaabah ṣawtiyyah ‘awaa’iliyyah* for ‘acrology’ (cf. al-Khuulii, 1982 and Mubaarak, 1995), *FI‘AAL* in *qiyaas* for ‘analogy’ (cf. all above terminographers), *TAF‘IIL* in *ta'biir mukhtaṣar* for ‘brachylogy’ (cf. al-Khuulii, 1982 and Mubaarak, 1995), etc. Denotatively, all the translation equivalents given to the terms identified in the sense of ‘a language-related process or its result’ are accurate in terms of translating the suffix -logy in this context, but some of them are denotatively inaccurate in terms of representing the technical meaning in linguistics of the related terms. The term ‘acrology’, for example, is translated by al-Khuulii (1982) and Mubaarak (1995) as *kitaabah ṣawtiyyah ‘awaa’iliyyah*, which is inaccurate and misleading because the process in ‘acrology’ is not one of ‘writing’ but of ‘establishing or using as an alphabetical sign’ as can be understood from the following definitions of this concept in English:

“the use of a graphic sign which originally represented the initial sound or syllable of a word as a general alphabetic sign” (Hartmann and Stork, 1972: 4)

or the

“process of inventing and naming alphabetical writing systems from syllabic pictographs” (Bussmann, 1996: 5)

Based on these definitions the translation equivalent *iqtiṭaa’ hijaa’ii* given by al-B‘albakii (1990) is denotatively more adequate and formally more concise than *kitaabah ṣawtiyyah ‘awaa’iliyyah*.

3- The translation equivalents for the set of terms denoting ‘a characteristic of speech or language’:

Table no. (6.1.3)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Amphibology	-	-	<i>‘ibhaam</i>	<i>‘iltibaas</i>
Brachylogy	<i>ta‘biir mukhtaṣar</i>	<i>ḥadhf ma‘luum</i>	<i>mujaz</i>	<i>ta‘biir mukhtaṣar</i>
Cacology	<i>1-khaṭa’ naḥwii</i> <i>2- khaṭa’ fii</i> <i>isti‘maal</i> <i>al-mufradaat</i> <i>3- khaṭa’ fii</i> <i>al-lafẓ</i>	<i>hujnah</i>	<i>hujnah</i>	<i>1-khaṭa’ naḥwii</i> <i>aw tarkiibii</i> <i>2- khaṭa’ fii</i> <i>al-lafẓ wa fii</i> <i>isti‘maal</i> <i>al-mufradaat</i>
Haplology	<i>ikhtizaal ṣawtii</i>	<i>ḥadhf ikhtizaalii</i>	<i>1-ifraad ṣawtii</i> <i>2-ifraad kalimii</i>	<i>ḥadhf + isqaat</i>
Tautology	<i>tarkiib ḥuushii</i>	<i>1-ḥashw</i> <i>2-taḥsiil al-ḥaasil</i>	<i>laghw</i>	<i>ḥashw + laghw</i>

As can be seen from the above table, the term ‘amphipology’ is not included at all by al-Khuulii (1982) and ALECSO (1989). Although the terms ‘brachylogy’ and ‘tautology’ are included by all the above terminographers they are not identified in the sense of ‘a characteristic of speech or language’ by any of them. The term

'brachylogy' is translated as *ta'biir mukhtaṣar* by al-Khuulii (1982) and Mubaarak (1995) and as *mukhtaṣar* by al-B'albakii (1990). Both translations denote 'a type of linguistic entity', but not 'a type of speech or language-related characteristic'. 'Tautology' is also translated as *tarkiib huushii* by al-Khuulii (1982) and as *tahsiil al-haasil* by ALECSO (1989). The first denotes 'a type of expression' and the second 'a type of process', but not 'a type of speech or language-related characteristic'.

In translating the terms identified in the sense of 'a characteristic of speech or language', the above terminographers give one-word and more-than-one word translation equivalents. The one-word equivalents are translations formed by *maṣḍar* patterns denoting 'a quality or characteristic' such as *'iltibaas* for 'ambiguity' (cf. Mubaarak, 1995), *hujnah* for 'cacology' (cf. ALECSO, 1989, and al-B'albakii, 1990), *hashw* for 'tautology' (cf. ALECSO, 1989 and Mubaarak, 1995), and *laghw* for 'tautology' (cf. al-B'albakii, 1990, and Mubaarak, 1995). Formally, all the one-word translation equivalents are concise, but, denotatively, some of them are imprecise and misleading. The translation equivalent *'ibhaam* given by al-B'albakii (1990) for 'amphibology' is misleading because in Arabic in this context it means 'obscurity or vagueness' (cf. 'Aniis et al, 1987: *'abhama*), but not 'ambiguity', which is the intended sense in the technical use of 'amphibology' in linguistics as can be understood from the following definition:

"ambiguity caused by lack of grammatical clarity, in which, especially out of context, a phrase or sentence can be understood in two ways" (McArthur, 1992: 61).

Based on this, *'iltibaas* given by Mubaarak (1995), or more appropriately, *labs*, is more precise denotatively than *'ibhaam*. The Arabic term *laghw* given by al-B'albakii (1990) and Mubaarak (1995) to 'tautology' is also inaccurate because in Arabic it has a completely different meaning from that of 'tautology' in English. In Arabic *al-laghw* in this context is:

"*maa laa yu'taddu bihi mina al-kalaami wa ghayrihi wa laa yuḥsalu minhu 'alaa faa'idah wa laa naf'*" ('Aniis et al, 1987: *al-laghw*),

which means 'the foolish talk or nonsense'. In English on the other hand, 'tautology' is defined as

"the use of redundancy in speech or writing" (Hartmann and Stork, 1972: 234)

or

"a kind of semantic anomaly in rhetoric in which an argument or proposition is repeated in the same or different words in the same utterance" (Wales, 1989: 455).

Based on these two definitions, the translation equivalent *hashw* given by ALECSO (1989) and Mubaarak (1995) is more denotatively accurate than *laghw*.

The more-than-one-word translation equivalents are either two-word compounds, such as *khata' nahwii* for 'cacology' (cf. al-Khuulii, 1982) and *hadhf ikhtizaalli* for 'haplology' (cf. ALECSO, 1989), or intensional paraphrastic translations such as *khata' fii isti'maal al-mufradaat* (cf. al-Khuulii, 1982) and *khata' nahwii 'aw tarkiibii* or *khata' fii al-lafz wa fii isti'maal al-mufradaat* (cf. Mubaarak, 1995) for 'cacology'. Although denotatively adequate, these paraphrastic translations are terminologically unacceptable due mainly to their lack of formal concision and semantic abstraction. A much more terminologically acceptable translation equivalent for 'cacology', which combines both denotative precision and formal concision, is *hujnah* given by ALECSO (1989) and al-B'albakii (1990). The same concept can also be translated by the Arabic term *lahn*. As shall be shown later, almost all terms in this list can be rendered into Arabic using one-word translation equivalents in which -logy is represented by a morphological pattern, thus meeting the terminological needs of precision and concision.

4- The translation equivalents for the set of terms denoting 'a set or collection of linguistic elements or language-related characteristics':

Table no. (6.1.4)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Characterology (of speech)	-	<i>diraasat</i> <i>mumayyizaat</i> <i>al-kalaam</i>	<i>‘usluubiyyat</i> <i>al-mutakallim</i>	-
Terminology	<i>mustalahaat</i> <i>fanniyyah</i>	<i>al-mustalahiyyah</i> + ‘ilm <i>al-mustalah</i>	<i>mustalahiyyah</i>	‘ilm <i>al-mustalahaat</i>

This table shows that ‘characterology of speech’ is included by two terminographers only and only al-B‘albakii (1990) identifies it in the above sense. Although ‘terminology’ is included by all four terminographers, it is identified in the above sense by al-Khuulii (1982) and al-B‘albakii (1990) only. The translation equivalents given to the terms identified in the sense of ‘a set or collection of linguistic elements or language-related characteristics, show that the suffix -logy in this set of terms is rendered morphologically in two ways: (1) employment of the Arabic ending -iyyah as in *‘usluubiyyat al-mutakallim* for ‘characterology of speech’ and *mustalahiyyah* for ‘terminology’ (cf. al-B‘albakii, 1990), and (2) employment of the ending -aat as in *mustalahaat fanniyyah* for ‘terminology’ (cf. al-Khuulii, 1982). Denotatively, the ending -aat, which denotes the plural, is more accurate than the ending -iyyah, because the latter does not denote ‘a set or collection’, but (a) ‘a state, condition or quality’ and (b) ‘a theory, movement or school of thought’. Based on this consideration, *‘usluubiyyat al-mutakallim* given by al-B‘albakii (1990) to ‘characterology of speech’ would mean ‘the quality of being *‘usluubii* (stylistic), which is semantically far from the following intensional definition given to the above term in English:

“the particular characteristics or stylistics of speech of an individual, including pronunciation, diction, choice of words, etc.” (Hartmann and Stork, 1972: 35)

Accordingly, and through the employment of the ending -aat, ‘characterology of speech’ can be translated as *mumayyizaat kalaamiyyah/‘usluubiyyah*. On the same

scale, *mustalahiyyah* given by al-B‘albakii (1990) to ‘terminology’ is misleading because it denotes ‘the state, condition or quality of being *mustalah* (technical term), but not ‘a set or collection of technical terms’. The translation equivalent *mustalahaat fanniyyah* given by al-Khuulii(1982) is denotatively accurate, but formally it is inconcise. Through morphological contraction and semantic abstraction, however, this translation equivalent can be shortened to just *mustalahaat*, which implies the quality of *fanniyyah* (technical).

5- The translation equivalents for the set of terms denoting ‘a language-related system or structure’:

Table no. (6.1.5)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Graphology	<i>diraasat al-khatt</i>	-	<i>khiṭaayyah</i> <i>khaaṣṣah</i>	<i>diraasat al-khatt</i>
Morphology	<i>‘ilm al-ṣarf</i>	<i>‘ilm al-ṣarf</i>	<i>binyat al-kalimah</i>	<i>‘ilm al-ṣarf</i>
Phonology	1- <i>‘ilm al-funimaat</i> 2- <i>‘ilm al-’aṣwaat</i> 3- <i>‘ilm al-’aṣwaat</i> <i>al-ta’riikhii</i>	<i>al-ṣawtiyaat</i> <i>al-waziifiyyah</i>	<i>‘ilm waṣaa’if</i> <i>al-’aṣwaat</i> + <i>funuluujiyaa</i>	<i>‘ilm al-ṣawt</i> <i>al-waziifii</i>
Semology	<i>‘ilm al-rumuuz</i>	-	<i>‘ilm al-dilaalah</i>	-
Terminology	<i>mustalahaat</i> <i>fanniyyah</i>	<i>al-mustalahiyyah</i> + <i>‘ilm</i> <i>al-mustalahaat</i>	<i>mustalahiyyah</i>	<i>‘ilm</i> <i>al-mustalahaat</i>

The above translation equivalents show that only ‘morphology’ is identified in the sense of ‘a language-related system or structure’ by al-B‘albakii (1990) who translates -logy as *binyah* in *binyat al-kalimah*. It is worth pointing out that contextually the suffix -logy in all the above terms, with the exception of ‘graphology’, can either mean ‘a system’ or ‘a structure’ as follows:

morphology

1- the morphological system of a language

2- the morphological structure of a word or syntagma

phonology	1- the phonological system of a language 2- the phonological structure of a word or unit
semology	1- the semantic system of a language 2- the semantic structure of a unit
terminology	1- the terminological system of a discipline 2- the terminological structure of a discipline

Based on this semantic analysis, the suffix -logy in this group of terms can contextually be translated as *nizaam* and *binaa*'. Another two lexically equivalent terms are *manzuumah* and *binyah* respectively. In 'graphology', however, the suffix can only be translated as *nizaam*, but not structure.

6- The translation equivalents for the set of terms denoting 'a special method, or skill, of expression or communication, or its result':

Table no. (6.1.6)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B'albakii 1990	Mubaarak 1995
Chirology	-	-	'ilm al-'imaa'	-
Cryptology	-	-	diraasat al-mushaffaraat	-
Dactylology	-	-	tasbii'	-
Pasimology	itisaal 'ishaarii	nizaam al-'itisaal bi al-'ishaaraat	tawaasul 'iymaa'ii	-

It is clear from the above table that most of the terms in this set are not included by most of the terminographers, and out of those included only 'dactylology' and 'pasimology' are identified in the above sense (cf. al-B'albakii, 1990 and al-Khuulii, 1982). In the translation equivalents given to the terms identified in the sense of 'a special method, or skill, of expression or communication, or its result', the suffix -logy is either translated by a *masdar* pattern as in *tasbii'* for 'dactylology', or by a full word as in *itisaal 'iyshaarii* (cf. al-Khuulii, 1982) and *tawaasul 'iymaa'ii* (cf. al-B'albakii, 1990) for 'pasimology'. It is worth pointing out here that translating the

suffix by a *maṣḍar* pattern produces more formally concise terms than translating it by a full word, with denotative precision being guaranteed in both ways. Accordingly, ‘chirology’ and ‘pasimology’ can both be translated as ‘*imaa*’, ‘cryptology’ as *tashfiir* and ‘dactylology’ as *taṣḥii*. Each of these translation equivalents can contextually denote ‘a method or skill of expression or communication’ or ‘the result of using that method or skill’.

7. The translation equivalents for the term denoting ‘a language-related philosophy’:

Table no. (6.1.7)

SL terms	al-Khuulii 1982	ALECSO 1989	al-B‘albakii 1990	Mubaarak 1995
Grammatology	<i>diraasat al-khuṭuūt</i>	<i>‘ilm al-kitaabah al-waḥiifii</i>	<i>khitaatah ‘aammah</i>	-

None of the three terminographers who include this term identify it in the above sense. The concept of ‘philosophy’ here can either be represented by the term *falsafah* or the suffix *-iyyah*, which can denote ‘a theoretical approach’. In the event of employing the term *falsafah*, the resultant translation equivalent will be a three-word compound, thus: *falsafat al-kitaabah al-tafkiikiyyah*, while employing the ending *-iyyah* can produce a two-word compound, thus: *al-kitaabiyyah al-tafkiikiyyah* to represent “the deconstructionalist philosophy of writing” (Asher, 1994, X: 5128). The problem with ‘grammatology’ in this context is that the technical concept it denotes is a complex one with three semantic components: (1) deconstructionalist, (2) philosophy and (3) writing. The first two components are morphologically represented by the suffix *-logy* while the third is represented by the base to which the suffix is appended. In Arabic, the component of ‘philosophy’ is represented by the *maṣḍar ṣinaa‘ii* pattern *FI‘ALIYYAH*, the component of ‘deconstructionalist’ by the full word *tafkiikiyyah*, and the component of ‘writing’ by the lexical morpheme (*k-t-b*).

Finally, and following this discussion of the translation equivalents given by the above four terminographers to the above semantically classified sets of -logy derivatives, the following conclusions are made:

- 1- The suffix -logy in the set of terms denoting 'a subject of study or branch of knowledge' can either be translated lexically by the word *'ilm* or morphologically by the suffix -*yaat* as follows:

accentology	<i>'ilm al-nabr</i>	<i>al-nabriyaat</i>
alphabetology	<i>'ilm al-kitaabaat al-'abjadiyyah</i>	<i>al-'abjadiyaat</i>
aphasiology	<i>'ilm al-hubsah</i>	<i>al-hubsiyaat</i>
audiology	<i>'ilm al-sam'</i>	<i>al-sam'iyaaat</i>
chirology	<i>'ilm al-'imaa'</i>	<i>al-'imaa'iyaaat</i>
cryptology	<i>'ilm al-kitaabaat al-sirriyyah</i>	<i>al-sirriyaat</i>
	<i>'ilm al-kitaabaat al-mushaffarah</i>	<i>al-mushaffariyaat</i>
dialectology	<i>'ilm al-lahajaat</i>	<i>al-lahjiyaat</i>
etymology	<i>'ilm al-ta'thiil</i>	<i>al-ta'thiiliyaat</i>
grammatology	<i>'ilm al-kitaabah</i>	<i>al-kitaabiyaat</i>
graphology	1- <i>'ilm al-khiṭaatah</i>	<i>al-khiṭaatiyaat</i>
	2- <i>'ilm al-khuṭuut</i>	<i>al-khattiyaat</i>
laryngology	<i>'ilm al-hanjarah</i>	<i>al-hanjariyaat</i>
lexicology	1- <i>'ilm al-mufradaat</i>	<i>al-mufradaatiyaat</i>
	2- <i>'ilm al-mu'jam¹</i>	<i>al-mu'jamiyaat</i>
morphology	<i>'ilm al-sarf</i>	<i>al-sarfiyaat</i>
narratology	<i>'ilm al-qisṣah</i>	<i>al-qasasiyaat</i>
onomasiology	<i>'ilm al-dilaalah al-mafhumi</i>	<i>al-dilaaliyaat</i>
		<i>al-mafhumiyyah</i>
onomatology	<i>'ilm al-'asmaa'</i>	<i>al-'asmaa'iyaaat</i>
pasimology	<i>'ilm al-'iymaa'</i>	<i>al-'iymaa'iyaaat</i>
philology	1- <i>'ilm al-lughah al-taqliidii</i>	<i>al-lughawiyaat</i>
		<i>al-taqliidiyyah</i>

¹ This should be interpreted as different from *'ilm al-ma'aajim* given for 'lexicography' (cf. 5.2).

	2- 'ilm al-'adab al-taqliidii	al-'adabiyaat al-taqliidiyyah
phonology	'ilm al- <u>siyaatah</u>	al- <u>siyaatiyaat</u>
rhematology	'ilm al-dilaalah al-falsafii	al-dilaaliyaat al-falsafiyyah
sematology	'ilm al-'alaamaat 'ilm al-simaat	al-'alaamiyaat al-simaa'iyaat
semasiology	'ilm al-dilaalah al-mu'jamii	al-dilaaliyaat al-mu'jamiyyah
semiology	'ilm al-'alaamaat 'ilm al-rumuuz	al-'alaamiyaat al-rumuuziyaat
semology	'ilm al-'alaamaat 'ilm al-rumuuz	al-'alaamiyaat al-rumuuziyaat
terminology	'ilm al-mustalah/al-'istilaah	al-mustalahiyaat
tonology	'ilm al-nighaamah	al-nighaamiyaat
translatology	'ilm al-tarjamah	al-tarjamiyaat
typology	'ilm al-tasniif (al-naw'ii)	al-tasniifiyaat (al-naw'iyyah)

It is clear from the above lists that the translation equivalents in which -logy is rendered literally by the word 'ilm are more semantically transparent than those formed by the suffix -yaat. However, the latter are more semantically abstractive and formally concise. Both types of translation equivalents lend themselves to further derivation in order to translate morphologically and semantically related terms such as:

audiologist	'aalim al-sam'	al-sam'ii
dialectologist	'aalim al-lahajaat	al-lahjaatii
etymologist	'aalim al-ta'thiil	al-ta'thiilii
lexicologist	'aalim al-mufradaat 'aalim al-mu'jam	al-mufradaatii al-mu'jamii
phonologist	'aalim al- <u>siyaatah</u>	al- <u>siyaatii</u>
terminologist	'aalim al-mustalah	al- mustalahii

2- The suffix -logy in the set of terms denoting ‘a language-related process or its result’ is translated by a *maṣḍar* pattern denoting ‘an action or its result’, as follows:

acrology	<i>iqtiṭaa‘ ‘awaa’ilii / hijaa’ii</i>
analogy	<i>qiyaaṣ</i>
brachylogy	1- <i>iqtiḍaab / ‘iyjaaz</i> 2- <i>ta‘bii muqtadab / muujaz</i>
etymology	<i>ta‘thiil</i>
haplology	1- <i>ḥadhḥ (ṣawṭii)</i> 2- <i>ḥadhḥ (ṣarfii)</i>
typology	<i>taṣniif (naw‘ii)</i>

The above translation equivalents reveal that semantically simple terms are translated into Arabic by one-word terms formed by *maṣḍar* patterns, while semantically complex terms are translated by compound terms in which the compound head is formed by a *maṣḍar* pattern.

3- In the set of terms denoting ‘a characteristic of speech or language’, -logy is translated by a *maṣḍar* pattern, denoting ‘a resulting quality or characteristic’, to produce one word-equivalents as follows:

amphibology	<i>labs</i>
brachylogy	<i>‘iyjaaz</i>
cacology	<i>hujnah / laḥn</i>
haplology	<i>ḥadhḥ</i>
tautology	<i>ḥashw</i>

4- In the set of terms denoting ‘a set or collection of linguistic elements or language-related characteristics’, -logy is translated by the ending -aat denoting the plural as follows:

characterology of speech	<i>mumayyizaat kalaamiyyah</i>
terminology	<i>mustalahaat / istilaahaat</i>

5- In the set of terms denoting ‘a language-related system or structure’, -logy is translated as *nizaam* and *binaa*’ (or *manzuumah* and *binyah*) when the -logy derivative denotes

“ a complex whole; a set of connected things or parts; an organized body of material or immaterial things” (COD),

as follows:

morphology	1- <i>al-nizaam al-sarfii</i>
	2- <i>al-binaa’ al-sarfii</i>
	3- <i>binyat al-kalimah</i>
phonology	1- <i>al-nizaam al-sawtii</i>
	2- <i>al-binaa’ al-sawtii</i>
semology	1- <i>al-nizaam al-dilaalii</i>
	2- <i>al-binaa’ al-dilaalii</i>
terminology	1- <i>al-nizaam al-istilaahii</i>
	2- <i>al-binaa’ al-istilaahii</i>

When the -logy derivative denotes “a method [or] considered principles of procedure” (COD), the suffix is translated as *nizaam* only, as follows:

morphology	<i>nizaam al-sarf</i>
graphology	<i>nizaam al-kitaabah</i>

6- In the set of terms denoting ‘a special method, or skill, of expression or communication, or its result’, the suffix -logy is translated by a *masdar* pattern, denoting ‘the action of doing something’, to produce one-word equivalents as follows:

chirology	<i>al-'ishaarah /al-'iymaa'</i>
cryptology	<i>al-tashfiir</i>
dactylology	<i>al-taṣbii'</i>
pasimology	<i>al-'iymaa'</i>

7- In the term denoting 'a language-related philosophy', the suffix -logy is rendered morphologically through the employment of the *maṣdar sinaa'ii* pattern ending in -*iyyah* as follows:

grammatology	<i>al-tafkiikiyyah al-kitaabiyyah</i>
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6.2. -ics

According to the NSOED, this suffix is from the adjectival suffix -ic and the plural suffix -s, representing French *-iques*, medieval Latin *-ica* and Greek *-ika*. According to general English dictionaries, the suffix -ics is employed in English to form nouns with the senses (1) a branch of knowledge or a treatise on one (NSOED), (2) study, knowledge, skill or practice, (3) systematic formulation, (4) characteristic actions or activities, (5) characteristic qualities, operations or phenomena (Webster's), (6) principles (RHD) and (7) mode or behaviour characteristic of a specified person or thing (LDOTEL).

In linguistics, -ics is technically used to express a set of concepts which includes some of the above. The linguistic technical terms ending in -ics can be divided morpho-etymologically into at least eleven pattern types as follows:

1- -ic derivative + plural suffix -s:	acoustics,	agogics,	cenematics,
	diplomatics,	glossematics,	honorfics,
	linguistics,	melodics,	metrics,
	onomastics,	phonematics,	phonemics,
	phonetics,	poetics,	pragmatics,

	rhematics, rhythmics, semantics, semiotics, stylistics, syntactics, tonetics
2- -eme derivative + -ics:	graphemics (graphem(e) + -ics) kinemics (kinem(e) + -ics) morphemics (morphem(e) + -ics) sememics (semem(e) + -ics) tagmemics (tagmem(e) + -ics) tonemics (tonem(e) + -ics)
3- Blending:	grammetrics (grammar + metrics)
4- Full word + a formative + -ics:	tagmatics (tagma + t + -ics)
5-Combining form + full word + -s:	phoniatics (phon- + iatric + -s)
6- Gk. root +Gk. root + -ics:	logopaedics (Gk. <i>logos</i> +Gk. <i>paideia</i> + -ics)
7- Gk. root + -ics:	cybernetics (Gk. <i>kubernetes</i> + -ics) kinesics (Gk. <i>kines</i> + -ics) phonics (Gk. <i>phone</i> + -ics)
8- Gk. root + -etic + -s:	cenetics (Gk. <i>kenos</i> + -etic + -s)
9- Contracted word + -emic + -s:	proxemics (prox(imity) + -emic + -s)
10- Contracted word + -s:	significs (signific(ance) + -s)
11- Full word + -etic + -s:	graphetics (graph + -etic + -s)

No doubt, this variation in the morpho-etymological background of the above linguistic terms ending in -ics can have serious implications for translating these terms into Arabic, especially in terms of lexicalization (the provision of lexemes to represent new concepts) and concision.

Semantically, the above linguistic terms ending in -ics can be classified into at least seven sets, each denoting an intensionally and extensionally distinct concept, as follows:

1- A subject of study or branch of knowledge:

acoustics	the branch of phonetics which studies the physical properties of speech sound, as transmitted between mouth and ear
agogics	the subject of study that deals with rhythm in speech
cenematics	the branch of glossematics that deals with cenemes
cenetics	in glossematic phonology, the branch that studies the phonetic details of cenemes
cybernetics	the branch of knowledge that deals with communication and control systems, especially automatic control systems such as the brain and nervous systems and comparable systems in machines
graphemics	the subject of study that deals with the distinctive units of writing systems in general or of the writing systems of a particular language
graphetics	the subject of study that deals with the graphic substance of written or printed language
kinemics	the subject of study that deals with meaningful gestures and other body movements in communication
kinesics	same as kinemics
linguistics	the scientific discipline whose goal is to describe language and speech in all relevant theoretical and practical aspects and their relation to adjoining disciplines

logopaedics	the branch of medicine that deals with speech disabilities and their treatment
metrics	the subject of study that deals with metre
morphemics	the branch of linguistic study that deals with the structure of words with particular reference to their analysis into morphemes
onomastics	the subject of study that deals with the origin and formation of proper names
phonematics	1- the part of prosodic analysis that deals with phonemic units 2- in glossematics, the part of phonology dealing with content, rather than expression
phonemics	the subject of linguistic study that deals with the description of the distinctive sound units (phonemes) of a language and their relationships to one another
phonetics	the branch of linguistics that studies the nature, production, and perception of speech sounds, in abstraction from the phonology of any specific language
phoniatics	the subject of study that deals with speech disorders involving production and voice quality
phonics	same as phonetics
poetics	the subject of study that deals with those aspects of linguistic structure which make a verbal message a work of art, and which thus identify the aesthetic function of language in literary texts
pragmatics	the sub-discipline of linguistics that studies the relationship between natural language expressions and their uses in specific communicative situations
proxemics	the subject of study that deals with the role played in communication by the degree of physical distance between speakers
rhematics	the branch of semantics that deals with the philosophical study of meaning

rhythmics	the branch of knowledge that deals with rhythm
semantics	the sub-discipline of linguistics devoted to the study of meaning in language
semiotics	the subject of study that deals with the properties of signalling systems, whether natural or artificial
significs	same as semiotics
stylistics	1- the study of any situationally distinctive use of language, and of the choices made by individuals and social groups in their use of language 2- the subject of study that deals with the aesthetic use of language in all linguistic domains
syntactics	the branch of linguistic study that deals with the rules governing the way words are combined to form sentences in a language
tonemics	the scientific study of tonemes
tonetics	the part of linguistic study that deals with the phonetic properties of tones

2- A language-related system or structure:

agogics	the system of rhythm in speech
cenematics	in glossematics, the system of cenemes, the linguistic units of the sound system of a particular language
cenetics	in glossematics, the system of phonetic units
kinemics	the system of gesture in speech or non-verbal communication including facial expressions and body motion
kinesics	same as kinemics
melodics	the system of intonation patterns
metrics	the system or the structure of metrical verse
phonemics	the phonemic system of a language
rhythmics	the rhythmical system
semantics	1- the system of meaning, or signification, in a language

	2- the semantic structure of a linguistic unit
sememics	in stratificational grammar, the sememic system or stratum, which handles the systems of semantic relationships between lexical items
syntactics	the system of the characteristic arrangements of syntactic units in sequence
tonetics	the system of pitch and tone in speech

3- A process or approach of linguistic study or analysis:

diplomatics	the study or investigation of legal and administrative documents with the aim of identifying the genuine documents as distinct from drafts, copies and forgeries
glossematics	a type of linguistic analysis based on the distribution and interrelationship of glossems
grammetrics	the study of the linguistic patterns used by a writer and how they deviate in their arrangement from grammatical norms
melodics	the study of intonation patterns
morphemics	an approach for analysing a language into minimal units (morphemes), including a description of their form and their arrangement
phonematics	in glossematic phonology, the approach or process of linguistic analysis that deals with content units rather than expression units
phonemics	an approach to the analysis of the sound system of a language based on the grouping of sounds or phones of the language into meaningful contrastive units (phonemes)
poetics	the process and approach of applying linguistic theory to the study or analysis of literary genres
stylistics	an approach or procedure for the analysis of texts
tagmatics	the investigation of the special ordering of specific linguistic elements

tagmemics	an American structuralist model of linguistic description which processes the phoneme, morpheme and tagmeme as the basic units, respectively, of phonology, lexicon and grammar. The tagmeme being used as a cover term for all grammatical units
tonemics	the process of classifying and studying contrastive tones, or tonemes
tonetics	the process of studying the phonetic properties of tones in speech

4- A language-related theory:

glossematics	the theory of linguistic structure developed by Hjelmslev and concerned with the reduction of language to minimal units (glossems) and the distribution and mutual relationships of these units
tagmemics	the theory of language developed by the American linguist Pike, which describes linguistic regularities in connection with sociocultural behaviour

5- A set of functionally related linguistic features or elements:

honorifics	the set of politeness formulas in a particular language, which may be specific affixes, words, or sentence structures
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6- A special method of language-related activity:

kinesics	the systematic use of facial expressions and/or body gesture to communicate meaning
phonics	a method of teaching spelling and reading which concentrates on breaking a word down into a sequence of graphic elements and assigning pronunciation to them

7- A language-related practice:

logopaedics	the treatment of speech and language disorders
phoniatrics	the diagnosis and treatment of pathological disorders of speech

It is clear from the above semantic classification of the linguistic terms ending in -ics that some of these terms are polysemous, such as:

agogics	1- the subject of study that deals with rhythm in speech
	2- the system of rhythm in speech
cenematics	1- the branch of glossematics that deals with cenemes
	2- in glossematics, the system of cenemes, the linguistic units of the sound system of a particular language
glossematics	1- the theory of linguistic structure developed by Hjelmslev and concerned with the reduction of language to minimal units (glossems) and the distribution and mutual relationships of these units
	2- a type of linguistic analysis based on the distribution and interrelationship of glossems
kinesics	1- the subject of study that deals with the meaningful gestures and other body movements in communication
	2- the system of gesture in speech or non-verbal communication including facial expressions and body motion
	3- the systematic use of facial expressions and/or body gesture to communicate meaning
logopaedics	1- the branch of medicine that deals with speech disabilities and their treatment
	2- the practice of treating speech and language disorders

Looked at paradigmatically, some of the above semantically classified terms are also synonymous in all or some of their senses' such as:

agogics = rhythemics
kinemics = kinesics
phonetics = phonics
semiotics = signifiics

Some of the -ics derivatives have synonymous counterparts in -logy, such as:

onomastics = onomasology
rhematics = rhematology
semantics = sematology
semiotics = semiology

In the light of the emic and etic approaches to the study of linguistic data¹, some of the -ics derivatives form pairs of emic and etic terms reflecting the two approaches in dealing with linguistic data within the same area or branch of linguistic study, or reflecting a relationship between two complementary areas or branches of study. Such pairs include:

graphemics/graphetics
phonemics/phonetics
tonemics/tonetics

Many of the above semantically classified -ics terms do also have morphologically and semantically related terms that fulfil syntactic and semantic functions, as exemplified by the following list:

acoustics acoustic

¹'Emic' and 'etic' are two morphologically extracted and semantically abstracted terms "which characterize opposed approaches to the study of linguistic data. An 'etic' approach is one where the physical patterns of language are described with a minimum reference to their function within the language system. An 'emic' approach, by contrast, takes full account of functional relationships, setting up a closed system of abstract contrastive units as the basis of description. Emic is in fact derived from such terms as Phoneme and Morpheme, where -eme refers to the minimal distinctive units involved" (Crystal, 1997: 134-135).

aesthetics	aesthetic
cybernetics	cybernetic, cybernetist
glossematics	glosseme, glossematic, glossematician, glossematist
linguistics	linguist, linguistic, linguistically
morphemics	morpheme, morphemic
phonemics	phoneme, phonemic
phonetics	phonetic, phonetically, phonetician, phoneticization
semantics	semantic, semanticist, semantically
semiotics	semiotic, semiotist
stylistics	stylistic
tagmemics	tagmeme, tagmemic, tagmemist

Derivative concepts are also expressed through prefixation and the appending of initial combining forms to some -ics terms to meet specific intra- and interdisciplinary terminological needs as can be seen from the following list:

anthropo-semiotics	morpho-phonemics
bio-linguistics	para-linguistics
glosso-genetics	phono-aesthetics
lexico-statistics	phono-stylistics
lingua-stylistics	pre-linguistics
macro-linguistics	socio-linguistics
micro-linguistics	stylo-metrics
meta-linguistics	topo-nomastics

Before we discuss the translation equivalents given by Arab terminographers to the above semantically classified -ics terms, it would be helpful to explore the ways in which Arabic normally expresses the above concepts denoted by the suffix -ics in linguistics in English. First of all, it is worth mentioning that the ways in which Arabic expresses the concepts of (1) 'subject of study or branch of knowledge', (2) 'a language-related system or structure', (3) 'a language-related

theory', and (4) 'a method of language-related activity' have already been discussed within the treatment of the suffix -logy (cf. 6.1).

The concept of 'a process or approach of linguistic study or analysis' is expressed in Arabic through the employment of full words, such as *fahs* (examination) or *tafahhus* (scrutiny), *diraasah* (study), and *tahliil* (analysis), as compound heads modified by nominal or adjectival terms denoting the type or nature of study or analysis. Examples are: *tafahhus al-makhtuutaat* (manuscript scrutinizing), *diraasah lughawiyyah* (linguistic study), *diraasah nahwiyyah* (grammatical study), *tahliil sarfii* (morphological analysis), *tahliil balaaghii* (rhetorical analysis), etc.

The concept of 'a set of functionally related linguistic features or elements' is normally expressed by full words in the plural form such as *siyagh* (patterns), 'adawaat (particles), 'alaamaat (signs) and *harakaat* (diacritics). These words are used in genitive compounds modified by *masdar* terms that specify the type of function fulfilled by the set of linguistic features or elements denoted by the compound head, as in *siyagh al-'istifhaam* (lit. interrogative patterns), *siyagh al-ta'ajjub* (lit. exclamation patterns), 'adawaat al-'istifhaam (lit. interrogative particles), 'adawaat al-rabt (lit. conjunction articles). 'alaamaat al-'i'raab (lit. inflexion signs) and *harakaat al-'i'raab* (lit. inflexion diacritics).

Finally, the concept of 'a language-related practice', is expressed in two ways: (1) Through the employment of the pattern *FI'AALAH*, which denotes 'trade, practice and office', to create one-word terms, as in *al-kitaabah* (the trade, practice or office of writing), *khiṭaṭah* (the trade, practice or office of calligraphy), etc. (2) Through the employment of full words, formed by *masdar* patterns, in 'idaafah (genitive) compounds modified by nominal or adjectival terms that specify the type of practice denoted by the compound, as in *ta'liim al-kitaabah* (the teaching of writing), *ta'liim al-qiraa'ah* (the teaching of reading), *naskh al-makhtuutaat* (manuscript copying), *taqwiim al-kalaam* (speech rectification), *tarjamat al-nusuus* (text translating), etc.

In what follows, the translation equivalents put forward by four Arab terminographers for the above semantically classified -ics terms will be taken up in some detail.

1- The translation equivalents for the set of terms denoting 'a subject of study or branch of knowledge':

Table no. (6.2.1)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990
Acoustics	'ilm al-sam'iyaa	al-'akustiikaa + 'ilm al-ṣawṭ al-fīzyaa'ii	'ilm al-ṣawṭ al-fīzyaa'ii	'ilm al-sam'iyaa
Agogics	-	-	-	'iqqaa'iyyah
Cenematics	-	-	al-sinmiyaat	'ilm al-siinimaat
Cenetics	-	-	al-sinmiyaat	'ilm al-wahḍaaat al-ṣawṭiyyah
Cybernetics	-	al-siibraaniyyah	'ilm al-dabṭ al-aalii	'ilm al-dabṭ
Graphemics	diraasat al-ghraafiimaat + diraasat al-khuṭuut	'ilm diraasat al-kitaabah	khitaatah	khitaatah khaassah
Graphetics	-	-	-	khitaatah 'aammah
Kinemics	diraasat al-kinimaat + diraasat al-harakaat al-mujarradah	al-kiinimiyyah	diraasah 'iymaa'iyyah + kiinimiyyah	'ilm al-kaaynimaat
Kinesics	diraasat al-kinimaat + diraasat al-harakaat al-mujarradah	al-kinsiyyah	-	'iymaa'iyyah

Linguistics	'ilm al-lughah	'ilm al-lughah	al-lisaaniyaat + 'ilm al-lisaan	'ilm al-lughah
Logopaedics	-	-	tabliil	taqwiim al-kalaam
Metrics	-	'ilm al-'awzaan	'ilm al-'aruud	'ilm al-'aruud
Morphemics	'ilm al-murfūmaat	-	'ilm al-ṣarf + 'ilm al-ṣiyagh	'ilm al-murfūmaat
Onomastics	diraasat al-'a'laam	diraasat al-'a'laam	diraasat al-'a'laam	'asmaa'iyyah
Phonematics	'ilm al-fuunimaat	'ilm al-wahḍaat al-ṣawtiyyah	'ilm al-wahḍaat al-ṣawtiyyah + al-ṣawtiyaat al-waḍiifiyyah	'ilm al-fuunimaat
Phonemics	'ilm al-fuunimaat + 'ilm al-'aṣwaat al-waḍiifi + al-ṣawtiyaat al-waḍiifiyyah	'ilm diraasat al-wahḍaat al-ṣawtiyyah	'ilm al-wahḍaat al-ṣawtiyyah	'ilm al-fuunimaat
Phonetics	'ilm al-'aṣwaat + al-ṣawtiyaat	'ilm al-'aṣwaat	al-ṣawtiyaat	'ilm al-'aṣwaat
Phoniatrics	-	-	-	'ilm 'uyuub al- nutq
Phonics	'ilm al-'aṣwaat	al-tariiqah al-ṣawtiyyah	-	'ilm al-'aṣwaat
Poetics	'ilm al-'aruud	al-diraasah al-lughawiyyah li al-shi'r	fann al-shi'r	'ilm al-'aruud
Pragmatics	'ilm al-rumuuz	-	diraasah isti'maaliyyah + braghmaatiyyah	'ilm al-rumuuz al-tawaasulii
Proxemics	-	-	-	taqaarubiyyah
Rhematics	'ilm al-dilaalah al-falsafii	-	-	'ilm al-dilaalah al-falsafii
Rhythmics	'ilm al-'iyqaa'	-	-	'iyqaa'iyyah
Semantics	'ilm al-dilaalah + 'ilm al-ma'aanii	'ilm al-dilaalah	'ilm al-ma'aanii	'ilm al-dilaalah
Semiotics	'ilm al-rumuuz	al-simyuuṭiyyah +	I-'ilm al-'adilah	'ilm al-siimaa

		<i>'ilm al-rumuuz / al-'alaamaat</i>	2- <i>'ilm al-siimyaa'</i> 3- <i>'ilm al-dilaalah al-lafziyyah</i>	
Significs	<i>'ilm al-rumuuz</i>	<i>'ilm al-rumuuz</i>	-	<i>'ilm al-siimaa</i>
Stylistics	<i>'ilm al-'asaaliib + 'ilm al-balaaghah</i>	<i>'ilm al-'usluub + al-'usluubiyyah</i>	<i>'ilm al-'usluub</i>	<i>'usluubiyyah</i>
Syntactics	<i>'ilm al-nahw</i>	<i>diraasat nazm al-kalaam</i>	<i>diraasat al-'intizaam al-tarkiibii</i>	<i>'ilm al-rumuuz al-'alaaqii</i>
Tonemics	-	-	-	<i>'ilm al-naghamaat al-waziifii</i>
Tonetics	<i>diraasat al-nagham + 'ilm al-naghamaat</i>	<i>al-naghamiyyah</i>	<i>diraasat al-tanghiim al-lughawii</i>	<i>'ilm al-naghamaat</i>

A quick look at the above table shows that some of the terms in this list are not included by some or all terminographers, and some terms, though included, are not identified by some of the terminographers in the sense of 'a subject of study or branch of knowledge'. The latter terms include 'kinemics' (cf. ALECSO, 1989), 'logopaedics' (cf. ALECSO, 1989 and al-B'albakii, 1990), 'phonics' (cf. Bakalla et al, 1983), 'poetics' and 'pragmatics' (cf. ALECSO, 1989). A review of the above suggested translation equivalents reveals that the concept of 'a subject of study or branch of knowledge' denoted by -ics in this set of terms is expressed in Arabic by the above terminographers in three ways: lexically, morphologically and through direct borrowing, thus producing formally and semantically inconsistent terms, not to mention the denotative inaccuracy of some of them.

1. Lexically, the above concept is expressed through the employment of the two full words *'ilm* (science) and *diraasah* (study), as in *'ilm al-lughah* for 'linguistics' (cf. al-Khuulii, 1982, Bakalla et al, 1983 and al-B'albakii, 1990), *'ilm al-'aruud* for 'metrics' (cf. ALECSO, 1989 and al-B'albakii, 1990), *'ilm al-wahdaat al-sawtiyyah* for 'phonemics' (cf. ALECSO, 1989), *diraasat al-nagham* for 'tonetics' (cf. al-Khuulii, 1982), *diraasat nazm al-kalaam* for 'syntactics', *al-diraasah al-*

lughawiyyah li al-shi'r for 'poetics' (cf. Bakalla et al, 1983) and *diraasat al-harakaat al-mujarradah* for 'kinemics' (cf. al-Khuulii, 1982). Some semantic and morphological implications pertinent to the use of 'ilm and *diraasah* in this context have already been highlighted under the discussion of the suffix -logy. These implications include: (1) in this context, the term 'ilm is denotatively more adequate and semantically more abstractive than the term *diraasah* (cf. 6.1), (2) employment of full words to render the above concept expressed in English by -ics results in compound translation equivalents some of which are composed of more than two words, such as *diraasat al-harakaat al-mujarradah* for 'kinesics' and 'kinemics' (cf. al-Khuulii, 1982), *'ilm al-wahdaat al-sawtiyyah* for 'phonematics' and 'phonemics' *al-diraasah al-lughawiyyah li al-shi'r* for 'poetics' (cf. Bakalla et al, 1983), *'ilm al-sawt al-fiizyaa'ii* for 'acoustics' *diraasat al-intizaam al-tarkiibii* for 'syntactics' (cf. ALECSO, 1989), etc. In some cases, the terms 'ilm and *diraasah* are used in one translation equivalent, as in *'ilm diraasat al-wahdaat al-sawtiyyah* for 'phonemics' and *'ilm diraasat al-kitaabah* for 'graphemics' (cf. Bakalla et al, 1983). As we shall see later, these translations are less terminologically suitable than one-word or two-word translations because they lack morphological compactness and semantic abstraction. The defect of inconcision in these translations can be of serious implications for translating morphologically and semantically related terms, such as 'morphophonemics', in which case the result will be longer translation equivalents.

The terms 'ilm and *diraasah* are sometimes employed by some of the above Arab terminographers to form hybrid compound translation equivalents through the combination of the two translation techniques of literal translation and direct borrowing as in *diraasat al-ghraafiimaat* for 'graphemics', *diraasat al-kiiniimaat* for 'kinemics' and 'kinesics', *'ilm al-murfiimaat* for 'morphemics', *'ilm al-fuuniimaat* for 'phonemics' (cf. al-Khuulii, 1982), *'ilm al-siiniimaat* for 'cenemics' and *'ilm al-murfiimaat* for 'morphemics' (cf. al-B'albakii, 1990). In Arabic, these terms are partially opaque because the base to which -ics is appended is directly borrowed from English rather than translated. Based on the prerequisite that terminological translation should produce as transparent technical terms as possible, these hybrid translations may not gain currency in Arabic, because, as we shall see latter, the

related SL terms can be sufficiently translated without having to resort to direct borrowing. This goes in line with the common observation that

“designation in special languages [...] aims at transparency and consistency; often attempts are made to make designations reflect in their structure major conceptual features or characteristics of the concepts they represent”.
(Sager, 1990: 57)

In translating ‘acoustics’, al-Khuulii (1982) and al-B‘albakii (1990) employ both the term *‘ilm* and the suffix *-yaat* to produce *‘ilm al-ṣawtiyaat*. This translation exhibits redundancy because the concept of ‘a subject of study or branch of knowledge’ is expressed twice in the same syntagma. First, lexically by the word *‘ilm*, and second, morphologically by the suffix *-yaat*, which, in modern times, is widely used to express the same concept as that of *‘ilm*.

In terms of the overall accuracy of the rendered concepts, many of the above translations produced through the employment of *‘ilm* and *diraasah* are either inaccurate or misleading. Consider, for example, the translation equivalents *‘ilm al-rumuuz* and *‘ilm al-rumuuz al-tawaasulii* given for ‘pragmatics’ by al-Khuulii (1982) and al-B‘albakii (1990) respectively. Both translations are inaccurate and misleading because ‘pragmatics’, as a subdiscipline of linguistics, is not concerned with signs and symbols in their own right, which is the domain of semiotics, but with

“the use of language in communication, particularly the relationships between sentences and the contexts and situations in which they are used”
(Richards et al, 1992: 284)

In other words,

“pragmatics is the science of language seen in relation to its users. This is to say, not the science of language in its own right, or the science of language as seen and studied by the linguists, [...] but the science of language as it is used by real, live people, for their own purposes and within their limitations and affordances” (Mey, 1993: 5).

In the light of the above definitions, the translation equivalent *'ilm al-takhaatub*, given by Ali (1993: 404), is denotatively more accurate and conceptually more representative of the above concept than the above two translations. *'Ilm al-takhaatub* can be made more concise through the employment of the suffix *-yaat* to produce *al-takhaatubiyaat*, which is structurally compact and semantically abstractive.

The translation equivalent *'ilm al-sam'iyaaat*, given by al-Khuulii (1982) and al-B'albakii (1990) for 'acoustics', is also misleading because the focus of acoustics as a branch of phonetics is not hearing, but

"the physical properties of speech sound, as transmitted between mouth and ear". (Crystal, 1997: 5)

Based on this fact, 'acoustics' in this context can be translated as *'ilm al-ṣawt al-maaddii*, and because this translation is a lengthy one, it can be made shorter through semantic abstraction to produce *al-ṣawtiyaat al-maaddiyyah*. The translation equivalent *'ilm al-sam'iyaaat* seems to be based on the general definitions of 'acoustics' in English, such as the following definition in the OED:

"the science of sound, and the phenomena of hearing"

It is worth pointing out here that when a technical term is designated within one branch of knowledge and is then re-employed by another branch of knowledge, its technical sense rarely remains the same because it acquires a more or less different intension and, consequently, it would have a different extension. This terminological phenomenon applies to 'acoustics', which was first used in the field of physics and was later appropriated within phonetics as a synonym to 'acoustic phonetics'.

Finally, in some cases, the translation equivalents in which the terms *'ilm* and *diraasah* are used do not reflect the morphological and semantic relationships that hold between an -ics term and other terms within the terminological system of the related linguistic domain. A case in point is *'ilm diraasat al-kitaabah* given by

Bakalla et al (1983) for ‘graphemics’. In addition to being misleading, this translation does not indicate any type of relationship between ‘graphemics’, on the one hand, and ‘grapheme’, on the other. In linguistics, ‘grapheme’ is the “distinctive unit of a writing system” (Bussmann, 1996: 198), and ‘graphemics’ is the linguistic domain that deals with the

“study of the distinctive units of a writing system or of the writing systems of a particular language”. (*Ibid*: 198)

In Bakalla et al (1983), however, ‘grapheme’ is transliterated as *al-kraafim* (with a diacritic on the *kaaf*), and ‘graphemics’ as *ilm diraasat al-kitaabah*, which makes an indication of the ‘distinctive unit of the writing system’, or even of *al-kraafim*.

2. Morphologically, the concept of ‘a subject of study or branch of knowledge’ is expressed by the above Arab terminographers in three ways:

(a) Employment of the suffix *-yaat* as in *al-lisaaniyaat* for ‘linguistics’ (cf. ALECSO, 1989) and *al-sawtiyaat* for ‘phonetics’ (cf. al-Khuulii, 1982 and ALECSO, 1989). This morphological device, as has already been pointed out under the discussion of *-logy*, is very practical from terminological perspective as it produces denotatively adequate and morphologically concise terms. However, employment of this device in conjunction with direct borrowing to produce hybrid terms such as *al-sinmiyaat* for ‘cinematics’ and ‘cinetics’ (cf. ALECSO, 1989) results in partially opaque terms in Arabic, as the base to which *-ics* is added is directly borrowed rather than translated.

(b) Employment of the *masdar sinaa’ii* suffix *-iyyah* as in *’iyqaa’iyyah* for ‘agogics’, *’iymaa’iyyah* for ‘kinesics’, *’asmaa’iyyah* for ‘onomastics’, *taqaarubiyyah* for ‘proxemics’ (cf. al-B’albaki, 1990), *al-naghamiyyah* for ‘tonetics’, *al-sibraaniyyah* for ‘cybernetics’, *al-kiiniimiyyah* for ‘kinemics’ and *al-simyuuutiyyah* for ‘semiotics’ (cf. Bakalla et al, 1983). It is clear from the above comparative table that the *masdar sinaa’ii* suffix *-iyyah* is only used by Bakalla et al (1983) and al-B’albaki (1990). It

has to be reiterated here that *-iyyah* can only be used to express the concepts of (1) ‘a state, condition or quality’ and (2) ‘a theory or school of thought’, but not ‘a subject of study or branch of knowledge’. Therefore, all the translation equivalents formed by this suffix in this context are denotatively inaccurate and misleading.

(c) Employment of the morphological pattern *FI'AALAH* as in *khiṭaṭah* and *khiṭaṭah khaassah* for ‘graphemics’ (cf. ALECSO, 1989 and al-B‘albakii, 1990) respectively, and *khiṭaṭah ‘aammah* for ‘graphetics’ (cf. al-B‘albakii, 1990). As already pointed out under the discussion of *-logy*, the pattern *FI'AALAH* does not denote the concept of ‘a subject of study or branch of knowledge’, but ‘a trade, practice and office’. It follows that the above translations formed by this pattern in this context are denotatively misleading (cf. 6.1).

3. Direct borrowing as is the case in translating ‘acoustics’ as *al-'akustikaa* (cf. Bakalla et al, 1983). This translation is semantically opaque and can only be properly understood by those who already know the related SL term. In fact, even in Bakalla et al (1983) the term is supported by another translation, namely: *'ilm al-sawt al-fiizyaa'ii*, which is semantically transparent despite the use of the already naturalized term *fiizyaa'ii*.

Finally, and by way of concluding this part, variation in the translation technique and employment of different lexical and morphological devices to translate the same concept denoted by *-ics* in this set of terms has resulted in formal and semantic inconsistency, morphological inconcision, denotative inaccuracy and semantic opacity of many terms. As shall be seen later, all terms formed by *-ics* in the sense of ‘a subject of study or branch of knowledge’ can be consistently translated in two ways: employment of the term *'ilm* and the suffix *-yaat*.

2- The translation equivalents for the set of terms denoting ‘a language-related system or structure’:

Table no. (6.2.2)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990
Agogics	-	-	-	'iyqaa'iyyah
Cenematics	-	-	al-sinmiyaat	'ilm al-siinimaat
Cenetics	-	-	al-sinmiyaat	'ilm al-wahdaat al-sawtiyyah
Kinemics	diraasat al-kinimaat + diraasat al-harakaat al-mujarradah	al-kiinimiyyah	diraasah 'iymaa'iyyah + kiinimiyyah	'ilm al-kaaynimaat
Kinesics	diraasat al-kinimaat + diraasat al-harakaat al-mujarradah	al-kinsiyyah	-	'iymaa'iyyah
Melodics	nizaam al-tanghiim	-	-	tanaaghumiyyah
Metrics	-	'ilm al-'awzaan	'ilm al-'aruud	'ilm al-'aruud
Phonemics	binyah fuuniimiyyah	'ilm diraasat al-wahdaat al-sawtiyyah	'ilm al-wahdaat al-sawtiyyah	'ilm al-fuunimaat
Rhythmics	'ilm al-'iyqaa'	-	-	'iyqaa'iyyah
Semantics	'ilm al-dilaalah + 'ilm al-ma'aanii	'ilm al-dilaalah	'ilm al-ma'aanii	'ilm al-dilaalah
Sememics	-	-	-	'ilm al-siimiimaat
Syntactics	'ilm al-nahw	Diraasat nazm al-kalaam	diraasat al-'intizaam al-tarkiibii	tartiibiyyah nazmiyyah
Tonetics	diraasat al-nagham + 'ilm al-naghamaat	al-naghamiyyah	diraasat al-tanghiim al-lughawii	'ilm al-naghamaat

A cursory view of the above table shows that some terms in this set are not included by some of the terminographers, and the vast majority of the included terms are not

identified in the sense of 'a language- related system or structure'. The translation equivalents given to the terms identified in the above sense reveal that the concept of 'a language-related system or structure' is expressed in two ways: lexically and morphologically.

1- Lexically through the use of the full terms of *nizaam* and *binyah*, as in *nizaam al-tanghiim* for 'melodics' and *binyah fuuniimiyyah* for 'phonemics' (cf. al-Khuulii, 1982). In terms of translating the suffix -ics, the use of *binyah* in translating 'phonemics' in this context is less adequate than the use of *nizaam*, because in 'phonemics' -ics denotes 'a system' not 'a structure', as can be understood from the following definition of this term:

"the phonemic system of a language, as in a phrase like "the phonemics of English"'". (Richards et al, 1992: 273)

2- Morphologically through the employment of the *masdar sinaa'ii* suffix -*iyyah* as in *al-kinimiyyah* for 'kinemics', *al-naghamiyyah* for 'tonetics' (cf. Bakalla et al, 1983), *'iymaa'iyyah* for 'kinesics', *tanaaghumiyyah* for 'melodics' and *tartiibiyyah nazmiyyah* for 'syntactics' (cf. al-B'albakii, 1990). Prima facie, these translation equivalents formed by -*iyyah* do not indicate the idea of 'system or structure', which is a justifiable observation, but under each of these entries the respective terminographers clearly point out the concept of 'system' in their definitions of these terms in which they use the term *nizaam*. However, as already repeatedly pointed out, the *masdar sinaa'ii* suffix -*iyyah* can only be used to form terms denoting (1) 'a state, condition or quality' and (2) 'a theory or school of thought', therefore, these -*iyyah* terms are denotatively misleading in this context. Finally, it is worth pointing out that -ics in this set of terms denotes 'a system' only, with the exception of 'semantics' and 'sememics', where it denotes both 'a system' and 'a structure'.

3- The translation equivalents for the set of terms denoting 'a process or approach of linguistic study or analysis':

Table no. (6.2.3)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990
Diplomatics	-	-	-	<i>rasmiaat</i>
Glossematics	<i>al-riyaadiyaat</i> <i>al-lughawiyyah</i>	<i>al-klusimaatiyyah</i>	<i>tahliil al-lughah</i>	<i>al-manzuumiyyah</i>
Grammetrics	-	-	<i>al-daruurah</i> <i>al-shi'riyyah</i>	<i>'usluubiyyah</i>
Melodics	<i>diraasat</i> <i>al-tanghiim</i>	-	-	<i>tanaaghumiyyah</i>
Morphemics	<i>'ilm al-murfimaat</i>	-	<i>'ilm al-sarf + 'ilm</i> <i>al-siyagh</i>	<i>'ilm al-murfimaat</i>
Phonematics	<i>'ilm al-fuunimaat</i> + <i>al-binyah</i> <i>al-fuuniimiyyah</i>	<i>'ilm al-wahdaat</i> <i>al-sawtiyyah</i>	<i>'ilm al-wahdaat</i> <i>al-sawtiyyah +</i> <i>al-sawtiyaat</i> <i>al-waziifiyyah</i>	<i>'ilm al-fuunimaat</i>
Phonemics	<i>'ilm al-fuunimaat</i> + <i>'ilm al-'aswaat</i> <i>al-waziifii +</i> <i>al-sawtiyaat</i> <i>al-waziifiyyah</i>	<i>'ilm diraasat</i> <i>al-wahdaat</i> <i>al-sawtiyyah</i>	<i>'ilm al-wahdaat</i> <i>al-sawtiyyah</i>	<i>'ilm al-fuunimaat</i>
Poetics	<i>'ilm al-'aruud</i>	<i>al-diraasah</i> <i>al-lughawiyyah</i> <i>li al-shi'r</i>	<i>fann al-shi'r</i>	<i>'ilm al-'aruud</i>
Stylistics	<i>'ilm al-'asaaliib</i> + <i>'ilm</i> <i>al-balaaghah</i>	<i>'ilm al-'usluub +</i> <i>al-'usluubiyyah</i>	<i>'ilm al-'usluub</i>	<i>'usluubiyyah</i>
Tagmatics	-	-	-	<i>al-jawhariyyah</i>
Tagmemics	-	<i>al-takmiimiyyah +</i> <i>al-taakmiimiyyah</i>	<i>al-taakmiimiyyah</i>	<i>al-qaalibiyyah</i>
Tonemics	-	-	-	<i>'ilm</i> <i>al-naghamaat</i> <i>al-waziifii</i>
Tonetics	<i>diraasat</i> <i>al-nagham + 'ilm</i> <i>al-naghamaat</i>	<i>al-naghamiyyah</i>	<i>diraasat</i> <i>al-tanghiim</i> <i>al-lughawii</i>	<i>'ilm</i> <i>al-naghamaat</i>

Some terms in this set are not included by most of the terminographers, as can be seen from the above comparative table, and the vast majority of the included terms are not identified in the sense of 'a process or approach of linguistic study or analysis'. A cursory view of the translation equivalents given to the terms identified in the above sense reveals that -ics in this context is rendered into Arabic in two ways:

1- Lexically through the use of the terms *diraasah* (study) and *tahliil* (analysis), as in *diraasat al-tanghiim* for 'melodics' (cf. al-Khuulii, 1982), *al-diraasah al-lughawiyyah li al-shi'r* for 'poetics' (cf. Bakalla et al, 1983), *diraasat al-tanghiim al-lughawii* for 'tonetics' and *tahliil al-lughah* for 'glossematics' (cf. ALECSO, 1989). These translation equivalents are denotatively accurate in terms of translating the suffix -ics, but some of them are loose and misleading in terms of rendering the overall meaning of the related English term. Consider, for example, *tahliil al-lughah* given by ALECSO (1989) for 'glossematics'. First of all, this translation does not make any indication of what distinguishes glossematics as an approach of linguistic analysis from any other approach, and second, being a genitive compound, in which *tahliil* is modified by a noun, *tahliil al-lughah* does not indicate the idea of 'approach', but the mere idea of 'process'. In this context, glossematics is

"a type of linguistic analysis based on the work of the Danish linguist L. Hjelmslev" (Hartmann and Stork, 1972), "and [is] concerned especially with the reduction of language to minimal units (glosseme) and the distribution and mutual relationships of these units". (NSOED)

It is clear from this definition that glossematics here is an intensionally and extensionally distinct approach. This distinction has to be reflected some how in the translation, which has to take 'glosseme' into account.

In terms of formal concision, some of the translation equivalents produced through the use of *diraasah* and *tahliil* are inadequate from the point of view of terminological translation because they are lengthy and lack semantic abstraction, such as *al-diraasah al-lughawiyyah li al-shi'r* for 'poetics' (cf. Bakalla et al, 1983) and *diraasat al-tanghiim al-lughawii* for 'tonetics' (cf. ALECSO, 1989).

2- Morphologically through the employment of the two suffixes *-iyyah* and *-yaat*. It has to be reiterated here that *-iyyah* can only be denotatively adequate in the case of *-ics* denoting ‘a theory’, but not ‘a process or approach of linguistic study or analysis’. Therefore, all the above translation equivalents formed by *-iyyah* in this context are misleading despite the use by some of the above terminographers of the words *tahliil* (analysis), *manhaj* (method or approach) and *diraasah* (study) in defining the related concepts, such as ‘glossematics’, ‘grammetrics’, ‘poetics’ and ‘tagmemics’ (cf. al-B‘albakii, 1990). It is worth pointing out here that in order to distinguish the sense of ‘theory’ from the other senses denoted by *-ics* in some terms, such as ‘glossematics’, ‘poetics’ and ‘tagmemics’, the *masdar* *sinaa‘ii* suffix *-iyyah* should only be used to render *-ics* in the sense of ‘theory’, and to use other lexical and morphological devices to represent its other senses. Based on this consideration, the above three English terms would have two translation equivalents each, representing the two senses of (1) ‘a process or approach of linguistic study or analysis’ and (2) ‘a language-related theory’, as follows:

	Sense (1)	Sense (2)
glossematics	<i>al-tahliil al-manzuumii</i> <i>al-tahliil al-nazmii</i>	<i>al-manzuumiyyah</i>
poetics	1- <i>al-tahliil al-‘adabii</i> <i>al-diraasah al-‘adabiyyah</i> 2- <i>al-tahliil al-shi‘rii</i> <i>al-diraasah al-shi‘riyyah</i>	<i>al-shi‘riyyah</i>
tagmemics	<i>al-tahliil al-qaalibii</i>	<i>al-qaalibiyyah</i>

Employment of the suffix *-yaat* to render the concept of ‘a process or approach of linguistic study or analysis’ has produced contextually misleading terms in Arabic. This is because in modern times, *-yaat* is commonly used to denote the concepts of ‘a subject of study or branch of knowledge’ and ‘a characteristic set of’, but not ‘a process or approach of linguistic study or analysis’. The translation equivalent *rasmiyaat* suggested by al-B‘albakii (1990) for ‘diplomats’ would be

understood in Arabic as (1) ‘the set of formalities’ or (2) ‘the subject of study or branch of knowledge that deals with formal linguistic usages and expressions’, but not ‘the critical study of legal and administrative documents with the aim of identifying genuine documents as distinct from drafts, copies and forgeries’ (cf. Crystal, 1992: 105). On the same scale, *al-riyaadiyyaat al-lughawiyyah* given by al-Khuulii (1982) to ‘glossematics’ would be perceived as ‘the branch of mathematics that deals with language’, but not the ‘glossematic analysis or description of language’.

In conclusion, the two morphological devices *-iyyah* and *-yaat* are denotatively inadequate in rendering the concept of ‘a process or approach of linguistic study or analysis’ denoted by *-ics* in the above set of terms. By contrast, the full words *tahliil* and *diraasah* are fully adequate in representing the above concept in Arabic.

4-The translation equivalents for the set of terms denoting ‘a language related theory’:

Table no. (6.2.4)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Glossematics	1- <i>al-riyaadiyyaat al-lughawiyyah</i> 2- ‘ilm al- <i>ṣarf</i>	<i>al-klusimaatiyyah</i>	<i>tahliil al-lughah + klusmaatiyyah</i>	<i>al-manzuumiyyah</i>
Tagmemics	-	<i>al-takmiimiyyah + al-taakmiimiyyah</i>	<i>al-taakmiimiyyah</i>	<i>al-qaalibiyyah</i>

A view of the above translation equivalents shows that the terms in this set do not seem to be identified clearly in the sense of ‘a language-related theory’. The use of the suffix *-iyyah* in translating ‘glossematics’ and ‘tagmemics’ by al-B‘albakii (1990) is definitely not intended for the sense of ‘theory’, but for the sense of ‘method or approach’, which is manifest from the use of the Arabic term *manhaj* (method or approach) in defining the related concepts. The denotative use of *-iyyah* by Bakalla et al (1983) in translating ‘tagmemics’ is not clear because no explanation is given

for the term in Arabic. Finally, *-iyyah* in the hybrid translation *taakmiimiyyah* given by ALECSO (1989) for ‘tagmemics’ seems to be intended to represent the sense of ‘theory’, as can be understood from the French entry *theorie tagmemique*. However, despite the denotative adequacy of *-iyyah* in representing the concept of ‘theory’, the above hybrid translation is not fully adequate because it is not semantically transparent.

5- The translation equivalents for the term denoting ‘a set of functionally related linguistic features or elements’:

Table no. (6.2.5)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Honorfics	-	-	-	<i>tabjiiliyaat</i>

It is clear from this table that only al-B‘albakii (1990) includes the term ‘honorfics’ and identifies it in the above sense. In rendering *-ics* in this context, al-B‘albakii (1990) employs the suffix *-yaat* in the sense of ‘a functionally related set’ to produce the abstractive term *tabjiiliyaat*, which is formally concise and denotatively adequate for representing the concept of

“[a set of] politeness formulas in a particular language which may be specific affixes, words, or sentence structures”. (Richards et al, 1992: 169)

However, unless contextually clear, *tabjiiliyaat* can be misconceptualized as ‘the subject of study or branch of knowledge that deals with politeness in language’ including the above mentioned formulas. A more transparent, but formally less concise, equivalent can be produced through literal, or intensional, translation in which *-ics* is rendered by the plural form *siyagh*, thus: *siyagh al-tabjiil* or *siyagh al-ta’addub*.

6- The translation equivalents for the set of terms denoting ‘a special method of a language-related activity’:

Table no. (6.2.6)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B‘albakii 1990
Kinesics	<i>diraasat</i> <i>al-kinimaat</i> + <i>diraasat</i> <i>al-ḥarakaat</i> <i>al-mujarradah</i>	<i>al-kinsiyyah</i>	-	<i>'iymaa'iyyah</i>
Phonics	<i>al-ṭariiqah</i> <i>al-ṣawtiyyah</i>	<i>al-ṭariiqah</i> <i>al-ṣawtiyyah</i>	-	<i>manhaj ṣawtii</i>

It is clear from the above table that both terms are not included in ALECSO (1989), and only ‘phonics’ is identified by the other three terminographers in the sense of ‘a special method of language-related activity’. The suffix -ics in ‘phonics’ is rendered lexically through the employment of the full words *ṭariiqah* (lit. way) as in *al-ṭariiqah al-ṣawtiyyah* (cf. al-Khuulii, 1982 and Bakalla et al, 1983), and *manhaj* (lit. method), as in *manhaj ṣawtii* (cf. al-B‘albakii, 1990). Both *ṭariiqah* and *manhaj* seem to be literal translations of the English term ‘method’ used in defining ‘phonics’ in this context in English. In Hartmann and Stork (1972: 174), for example, ‘phonics’ is defined as

“a method of teaching reading by training the learner to associate a particular sound with a particular symbol”.

In the OED, ‘Phonics’ is also defined as

“a method of teaching reading by associating letters or group of letters with particular sounds”

In terms of reflecting the overall meaning of the term ‘phonics’, the above two translations reflect only two out of the three main semantic components of (a) method, (b) teaching and (c) sound constituting the concept of ‘phonics’ as defined above. It is clear that the above suggested translations represent the components (a) and (c) only, but not (b), therefore, both translations are semantically loose in terms of representing the technical sense of the whole term. If rendered intensionally, the

above concept will be represented in Arabic as *manhaj al-ta'liim al-ṣawṭii* (or *al-ṣiyaatii*), which is somehow cumbersome. To accommodate the above three semantic components in a more concise equivalent, the component of 'method' can be represented by a *maṣḍar* pattern, such as *TAF'IIL*, and the component of 'teaching' by the lexical morpheme ('-l-m) to form the full word *ta'liim*. This full word is then employed as a compound head modified by an adjectival term representing the component of 'sound', such as *ṣawṭii* (or *ṣiyaatii*), to produce the equivalent *al-ta'liim al-ṣawṭii* (or *al-ṣiyaatii*).

The suffix -ics in 'kinesics' can also be translated by a *maṣḍar* pattern to form a term with the general denotation of 'a way or method of doing or acting', such as '*iymaa*' (the way or method of communicating through gestures).

7- The translation equivalents for the set of terms denoting 'a language-related practice':

Table no. (6.2.7)

SL terms	al-Khuulii 1982	Bakalla et al 1983	ALECSO 1989	al-B'albakii 1990
Logopaedics	-	-	<i>tabliil</i>	<i>taqwiim</i> <i>al-kalaam</i>
Phoniatrics	-	-	-	'ilm 'uyuub <i>al-nuṭq</i>

None of the two terms in this set is included in al-Khuulii (1982) or Bakalla et al (1983). While both terms are included in al-B'albakii (1990), only 'logopaedics' is included in ALECSO (1989). Out of the two included terms only 'logopaedics' is identified in the sense of 'a language-related practice', and is translated extensionally in ALECSO (1989) and intensionally in al-B'albakii (1990). The extensional translation *tabliil* consists in the employment of the *maṣḍar* pattern *TAF'IIL*, which denotes 'intensity and repetition', and the lexical morpheme (*b-l-l*), which is related to 'healing and recovering'. In this translation, the concept of 'practice' denoted by -ics in this context is represented in Arabic by the *maṣḍar* pattern *TAF'IIL*. It is clear

from the definition of *tabliil* given by ALECSO (1989) that this translation is based on the Arabic word *bullah*, which means ‘fluency of the tongue’.¹ It could also be, though not indicated by the terminographer, a derived noun of action from ‘*aballa*’, meaning ‘to heal or to recover’ (‘Aniis et al, 1987: ‘*aballa*’). Although *tabliil* is morphologically related to the above two Arabic words (*bullah* and ‘*aballa*’), it is word-formationally defective and denotatively misleading. It is word-formationally defective because *tabliil* is the *masdar* of *ballala*, meaning ‘to make wet, moist or damp’, but not ‘to make fluent’, which is the related sense in this context. Consequently, *tabliil* is denotatively misleading because it will be conceived of as ‘the practice of making wet, moist or damp’, but not ‘the practice of treating or eliminating speech and language disorders’ (cf. Hartmann and Stork, 1972: 216).

In the intensional translation *taqwiim al-kalaam*, given by al-B‘albakkii (1990) to ‘logopaedics’, -ics is rendered by the *masdar* pattern *TAF‘IIL*, which forms the compound head *taqwiim* that stands for the morphological part -paedics, and is modified genitively by the term *al-kalaam* to specify the nature or type of practice. In respect of representing the technical concept denoted in English by ‘logopaedics’, this translation is denotatively adequate. Another way of translating this term is to employ the pattern *FI‘AALAH*, which denotes ‘trade, practice and office’, to form the translation equivalent *qiwaamat al-lisaan* or *qiwaamat al-kalaam*.

Finally, and in the light of the above discussion of the technical uses in linguistics of the suffix -ics, and following the above review of the translation equivalents suggested by the above four Arab terminographers to the linguistic terms ending in -ics, the following conclusions are made:

1- In the set of terms denoting ‘a subject of study or branch of knowledge’, the suffix -ics can be rendered into Arabic consistently in two ways: lexically, by the full word ‘*ilm*’, and morphologically, by the suffix -*yaat*. Denotatively, both types of translation equivalents are adequate, but formally, the translation equivalents produced through the employment of -*yaat* are more concise than those produced

¹ The definition reads as follows: “*taqwiim al-nuṭq wa ‘izaalat al-bullah*”, which can be translated

through the use of the term '*ilm*'. In terms of semantic transparency, however, the latter are more transparent than the former as can be seen from the following lists:

acoustics	'ilm al- <u>sawt</u> al-maaddii	al- <u>sawtiyaat</u> al-maaddiyyah
agotics	'ilm al-'iyqaa'	al-'iyqaa'iyaaat
cenematics	'ilm al- <u>siitaat</u> 'ilm al-wah <u>daat</u> al- <u>sawtiyyah</u>	al- <u>siitiyaat</u>
cenetics	'ilm al-'a <u>s</u> waat	al- <u>sawtiyaat</u>
cybernetics	'ilm al-ta <u>h</u> akkum	al-ta <u>h</u> akkumiyaat
graphemics	'ilm al-wah <u>daat</u> al-k <u>h</u> attiyyah	al-k <u>h</u> attiyaat
graphetics	'ilm al-k <u>h</u> u <u>u</u> u <u>t</u>	al-k <u>h</u> u <u>u</u> u <u>t</u> iyaaat
kinemics	'ilm al-'iymaa'aat 'ilm al-wah <u>daat</u> al-'iymaa'iyyah	al-'iymaa'iyaaat
kinesics	'ilm al-'iymaa'aat 'ilm al-wah <u>daat</u> al-'iymaa'iyyah	al-'iymaa'iyaaat
linguistics	'ilm al-lughah 'ilm al-lisaan	al-lughawiyaat al-lisaaniyaat
logopaedics	'ilm taqwiim al-kalaam	al-kalamiyaat (al-taqwiimiyyah)
metrics	'ilm al-'aru <u>u</u> d	al-'aru <u>u</u> d _i yaat
morphemics	1- 'ilm al- <u>s</u> arf 2- 'ilm al-wah <u>daat</u> al- <u>s</u> arfiyyah ('ilm al-mu <u>s</u> arrifaat)	al- <u>s</u> arfiyaat al- <u>s</u> arfiyaat al-mu <u>s</u> arrifiyaat
onomastics	'ilm 'asmaa' al-'alam	al-'asmaa'iyaaat al-'alamiyyah
phonematics	'ilm al-wah <u>daat</u> al- <u>s</u> awtiyyah 'ilm al- <u>siitaat</u>	al- <u>s</u> awtiyaat al- <u>siitiyaat</u>
phonemics	'ilm al-wah <u>daat</u> al- <u>s</u> awtiyyah 'ilm al- <u>siitaat</u>	al- <u>s</u> awtiyaat al- <u>siitiyaat</u>
phonetics	'ilm al-'a <u>s</u> waat	al-'a <u>s</u> waatiyaat
phoniatics	'ilm 'uyuub al-kalaam	al-kalamiyaat (al-'uyuubiyyah)
phonics	'ilm al-'a <u>s</u> waat	al-'a <u>s</u> waatiyaat
poetics	1- 'ilm al-shi'r	al-shi'riyaat

literally as 'the correction (or rectification) of pronunciation and the restoration of fluency'.

	2- 'ilm al-'adab	al-'adabiyaat
pragmatics	'ilm al-takhaaṭub	al-takhaaṭubiyaat
proxemics	'ilm al-taqaarub (al-takhaaṭubii)	al-taqaarubiyaat (al-takhaaṭubiyyah)
rhematics	'ilm al-dilaalah al-falsafii	al-dilaaliyaat al-falsafiyyah
rhythmics	'ilm al-'iyqaa'	al-'iyqaa' iyaat
semantics	'ilm al-dilaalah	al-dilaaliyaat
semiotics	'ilm al-'alaamaat	al-'alaamiyaat
significs	'ilm al-'alaamaat	al-'alaamiyaat
stylistics	'ilm al-'usluub	al-'usluubiyaat
syntactics	'ilm al-tarkiib	al-tarkiibiyaat
tonemics	'ilm al-wahdaat al-nighaamiyyah	al-nighaamiyaat
	'ilm al-nughaymaat	al-nughaymiyaat
tonetics	'ilm al-naghamaat	al-naghamiyaat
	'ilm al-tanghiim	al-tanghiimiyaat

As can be seen from the above translation equivalents, semantic and formal consistency is achieved in both types of translation equivalents. Both types also lend themselves to further derivation and/or compounding to translate morphologically and semantically related terms, as can be exemplified by the following list:

acoustic	al- <u>saw</u> tii al-maaddii
acoustic features	al-khaṣaa'is al- <u>saw</u> tiyyah al-maaddiyyah
cybernetist	al-taḥakkumii ('aalim or ikhtiṣaaṣii al-taḥakkum)
morphemic analysis	tahliil <u>sar</u> fii / tahliil muṣarriḥii
phonetic	<u>saw</u> tii
phonetic analysis	tahliil <u>saw</u> tii
phonetician	al-'aṣwaatii ('aalim al-'aṣwaat)
semanticist	al-dilaalii ('aalim al-dilaalah)
semantically	dilaaliyyan

The above two types of translation equivalents also take into consideration the emic vs. etic relationship between some terms, as between ‘graphemics’ and ‘graphetics’; ‘phonemics’ and ‘phonetics’; ‘tonemics’ and ‘tonetics’.

2- The suffix -ics in the set of terms denoting ‘a language-related system or structure’ can be translated consistently as *nizaam* when the suffix denotes “a method [or] considered principles of procedure” (COD), as follows:

agotics	<i>nizaam al-’iyqaa’</i>
kinemics	<i>nizaam al-’iymaa’</i>
kinesics	<i>nizaam al-’iymaa’</i>
melodics	<i>nizaam al-tanghiim</i>
metrics	<i>nizaam al-’aruud</i>
rhythmics	<i>nizaam al-’iyqaa’</i>
syntactics	<i>nizaam al-tarkiib</i>
tonetics	<i>nizaam al-tanghiim</i>

When the suffix denotes

“a complex; a set of connected things or parts; an organized body of material or immaterial things” (COD),

it is translated consistently as *nizaam* and *binaa’* as follows:

cenematics	<i>al-nizaam al-siitii</i> <i>al-binaa’ al-siitii</i>
cenetics	<i>al-nizaam al-sawtii</i> <i>al-binaa’ al-sawtii</i>
metrics	<i>al-nizaam al-’aruudii</i> <i>al-binaa’ al-’aruudii</i>
phonemics	<i>al-nizaam al-siitii</i> <i>al-binaa’ al-siitii</i>
semantics	<i>al-nizaam al-dilaalii</i>

	<i>al-binaa' al-dilaalii</i>
sememics	<i>al-nizaam al-dilaalii</i>
	<i>al-binaa' al-dilaalii</i>
syntactics	<i>al-nizaam al-tarkiibii</i>
	<i>al-binaa' al-tarkiibii</i>

3- In the set of terms denoting 'a process or approach of linguistic study or analysis', the suffix -ics is translated as *diraasah* (or *fahs*) and/or *tahliil*. The difference between -ics in the sense of 'process' and -ics in the sense of 'approach' is maintained as follows:

(a) When -ics denotes 'a process of linguistic study or analysis', the term *diraasah* (or *fahs*) or *tahliil* is employed as a compound head in a genitive compound, as follows:

diplomatics	<i>diraasat al-wathaa'iq</i>
	<i>fahs al-wathaa'iq</i>
melodics	<i>diraasat al-tanghiim</i>
stylistics	<i>diraasat al-'usluub</i>
	<i>tahliil al-'usluub</i>
tonemics	<i>diraasat al-nughaymaat</i>
tonetics	<i>diraasat al-naghamaat/al-tanghiim</i>

(b) When -ics denotes 'an approach of linguistic study or analysis', the terms *diraasah* and/or *tahliil* are used as compound heads in attributive compounds, that is to say, modified by attributive terms, as follows:

glossematics	<i>al-tahliil al-nazmii / al-manzuumii</i>
grammetrics	1- <i>al-tahliil al-'aruudii al-qawaa'idii</i>
	2- <i>al-tahliil al-tarakhusii</i>
melodics	<i>al-tahliil al-tanghiimii</i>
morphemics	1- <i>al-tahliil al-sarfii</i>

	<i>2- al-tahliil al-musarrifii</i>
phonematics	<i>al-tahliil al-siitii</i>
phonemics	<i>al-tahliil al-siitii</i>
poetics	<i>al-tahliil al-'adabii</i>
	<i>al-diraasah al-'adabiyyah</i>
stylistics	<i>al-tahliil al-'usluubii</i>
	<i>al-diraasah al-'usluubiyyah</i>
tagmatics	<i>al-tahliil al-tartiibii</i>
tagmemics	<i>al-tahliil al-qaalibii</i>
tonemics	<i>al-tahliil al-nughaymii</i>
tonetics	<i>al-tahliil al-naghamii/ al-tanghiimii</i>

4- The suffix -ics in the set of terms denoting 'a language-related theory' is rendered consistently by the *masdar sinaa'ii* pattern ending in -iyyah as follows:

glossematics	<i>al-nazmiyyah</i>
	<i>al-manzuumiyyah</i>
tagmemics	<i>al-qaalibiyyah</i>

5- In the set of terms denoting 'a set of functionally related linguistic features or elements', -ics is either rendered lexically, by a full word denoting plural, or morphologically, by the suffix -yaat, as follows:

honorfics	<i>siyagh al-tabjiil</i>
	<i>siyagh al-ta'addub</i>
or	
	<i>al-tabjiiliyaat</i>
	<i>al-t'addubiyaat</i>

6- In the set of terms denoting 'a special method of language-related activity', -ics is rendered morphologically by a *masdar* pattern denoting 'noun of action', as follows:

kinesics	<i>al-'imaa'</i>
phonics	<i>al-ta'liim al-ṣawṭii</i> <i>al-ta'liim al-taṣwiitii</i>

7- In the set of terms denoting 'a language-related practice', the suffix -ics is rendered morphologically by a *masdar* pattern denoting 'practice or repetition and intensity', as follows:

logopaedics	<i>'ilaaj al-kalaam</i> <i>qiwaamat al-kalaam</i> <i>qiwaamat al-lisaan</i>
or	<i>taqwiim al-kalaam</i> <i>taqwiim al-lisaan</i>
phoniatics	<i>'ilaaj al-kalaam</i> <i>qiwaamat al-kalaam</i> <i>qiwaamat al-lisaan</i>
or	<i>taqwiim al-kalaam</i> <i>taqwiim al-lisaan</i>

Conclusion

Despite the fact that Arabic had one of the major world linguistic traditions in the past, modern linguistic research in Arabic still lags behind research in such languages as English and French. A number of direct and/or indirect factors related to how linguistics and its terminology developed in English and other European languages, and the way the discipline is approached in Arabic by Arab linguists, translators and terminographers are behind this situation (cf. Chapters I and II).

Approaching modern linguistics via translation has always been harder and less fruitful than approaching the discipline in the original languages of linguistic research. This is in part due to problems related to the translation and standardization of terminology, which resulted in terminological and conceptual chaos. This has impeded the development of modern linguistics on solid grounds in Arabic.

One of the most outstanding problems facing terminology standardization and progress in modern linguistics in Arabic is that of translating derivational suffixes and prefixes in linguistics terminology in English and other European languages. The issue of translating suffixes and prefixes in general has been treated superficially by Arab linguists and translators, who have not always been successful in exploiting the morphological resources of the language to create new terminologies. What is required is a thorough treatment of affixes from the point of view of terminological translation in the light of the linguistic nature of each affix and its technical sense(s). This is in addition to the proper exploitation of the actual and potential Arabic lexical and morphological devices. This was the task of this study in respect of translating ten suffixes in linguistics terminology from English into Arabic. These suffixes are -able, -ization, -lect, -eme, -nym, -graph, -graphy, -gram, -logy, and -ics.

The translation of derivational suffixes in linguistics terminology from English into Arabic as part of the wider issue of the translation of linguistics terminology is governed by a number of linguistic and terminological factors. These include (1) the special nature of technical terms in general as morphologically concise and semantically restricted linguistic signs; (2) the abstract and social nature of language as an object of study and its implications for the designation of linguistic concepts and development of linguistics terminology; (3) the recency of linguistics and the continuous flow of terminology; (4) the metalinguistic nature of linguistic terms; (5) the terminological diversity among linguists and its effect on standardization and translation; (6) the use of terms from other disciplines; (7) the use of terms from other languages, (8) the use of the same terms in different linguistic domains for different concepts; (9) the nature of English suffixes as etymologically heterogeneous and semantically inconsistent word-formation devices; and (10) the Semitic nature of word-structure and word-formation in Arabic as different from word-structure and word-formation in English.

In discussing the issues related to translating the above ten suffixes, a six-procedure approach was adopted (cf. 1.3) to achieve the three main objectives of the study:

1- Identification of as many as possible of the technical senses denoted in linguistics by each of the above suffixes. With the exception of *-eme*, all the above suffixes are employed technically in more than one sense, with some having more than five or six senses such as *-ization*, *-graphy*, *-gram*, *-logy* and *-ics*.

2- Identification of the actual and potential morphological and lexical devices in Arabic that can express the variety of concepts denoted in linguistics by the above ten suffixes. In this respect, and through its rich vocabulary and *al-siyagh al-sarfiyyah*-based derivation, Arabic is able to accommodate all types of radical and derivative linguistic concepts without having to resort to direct borrowing. In fact, in depending on its own morphological and lexical resources and excluding direct borrowing, Arabic is able to preserve and reflect conceptual relationships between

morphologically and semantically related SL technical terms that belong to one terminological/conceptual system.

3- Identification of suitable translation techniques that can produce denotatively precise, morphologically concise and formally consistent translation equivalents in Arabic for each set of linguistic terms in which the suffix denotes a specific concept. Two points should be emphasized here: First, no one translation technique can be used to translate all types of technical terms adequately. On the contrary, different translation techniques are needed for different types of terms. In terminological translation, the techniques of *intensional* and *extensional* translation are particularly useful¹. Intensional translation involves the use of the TL word(s) that reflect(s) the intension (or definition) of the SL concept, and extensional translation involves the employment of the TL word(s) that represent(s) what the SL entity is or what it does (identity or function) rather than its definition. Resort to direct borrowing, as a technique in terminological translation, is excluded in this study because it produces opaque TL terms, which create breaks in the conceptual and formal relatedness of terms.

Second, terminological translation as a product is governed by a number of factors, which decide its quality. These factors are (1) denotative precision, or accuracy of meaning, (2) consistency, (3) concision, and (4) maintenance of semantic and morphological relationships between terms. Denotative precision is achieved through the proper conceptualization of the technical sense of the SL term and the proper selection, or creation, of the TL term that can re-express the same technical sense in the TL. Consistency is normally achieved through the contextually consistent interpretation of SL terms, and the consistent employment of TL linguistic elements that contextually yield the same interpretations. The property of concision is significant in technical terms because it speeds communication and qualifies terms to be amenable to further derivation to meet future terminological needs. Normally, concision is achieved through the creation of the shortest possible terms through specific word-formation methods, such as affixation. However, denotative precision

¹ See also Ali (1993: 10)

and morphological concision are two conflicting factors in the process of translating technical terminology, especially when translating from an affixational language, such as English, into a non-affixational language, such as Arabic. It follows that the concept of 'concision' in this context is a relative one, that is to say, concision in terminological translation should normally be viewed and judged in the light of the word-formation methods of the TL, and the possibility of achieving it, rather than as an absolute fact. Therefore, a two-word, and sometimes a three-word, translation equivalent in Arabic, such as *tahyiid al-siyaaq*, rendering the English one-word term 'decontextualization', is legitimately described as concise in Arabic, in a similar way to its English counterpart. This fact is manifest in the translation equivalents suggested in this study for many linguistic terms formed by the above mentioned suffixes. Furthermore, designation of lexical items in English and some other European languages is based on convention more than on the semantic transparency of the lexical and morphological elements involved in forming a particular syntagma, whereas designation of lexical items in Arabic exhibits the reverse. In other words, lexical morphemes (roots) and morphological patterns (*al-siyagh al-sarfiyyah*) in Arabic are usually semantically transparent and relatively consistent, because etymologically the vast majority of roots and probably all morphological patterns are originally Arabic. In English, on the other hand, the majority of roots and affixes are borrowed from other languages, such as Greek, Latin and French, and are employed inconsistently. In translating semantically complex items from English into Arabic, this usually results in the use of full words in Arabic to represent the same semantic components represented by morphological elements in English, such as *'ilm al-kitaabah al-'abjadiyyah* for 'alphabetology', and *mirsamah hanjariyyah kahrabaa'iyyah* for 'electrolaryngograph'. It is through morphological contraction and semantic abstraction that relatively more concise terms can be produced in Arabic, such as *al-kitaabiyyaat al-'abjadiyyah* or *al-'abjadiyaat* for 'alphabetology'. However, this process of shortening translation equivalents is not always possible in Arabic. Finally, maintenance, in the TL, of the semantic and morphological relationships holding between semantically and morphologically related SL terms preserves the terminological system within which the translated terms fall, and eventually preserves the underlying conceptual system of the translated discipline or

sub-discipline. This was made possible in this study through the employment of Arabic terms, whether already available or purposely coined, that can reflect the same semantic and morphological relationships held by the SL terms, such as the employment of *'ajamah*, *mu'jamii*, *mu'jamiyaat* and *mu'jamii* to preserve the semantic and morphological relationships between 'lexeme', 'lexical', 'lexicology' and 'lexicologist' respectively.

This study shows that proper translating of technical terms, whether within the translation of the literature of a discipline or for terminographical purposes, can be accomplished through the adoption of a systematic approach based on the proper understanding of the concepts of the discipline, on the one hand, and on the proper conceptualization of the nature of technical terms and terminological translation, on the other. As the scope of this study is restricted to ten suffixes only, similar studies may be conducted to cover the remaining suffixes, as well as the prefixes, used in the terminology of linguistics. The systematic approach and the findings of this study and future studies may serve as a basis for a computer programme for the electronic documentation and the creation of an interactive terminological database in Arabic. The computer programme may also be developed to set up an electronic system for the automatic translation of linguistic terminology from English into Arabic once the rest of the linguistic technical terms are translated in the same way.

The systematic approach adopted in this study may also be applied for translating terminologies of other disciplines. However, it should be pointed out here that dependence on translation only in assimilating sciences, or branches of knowledge, leads to the infiltration by SL cultural and linguistic elements into the TL and its culture. These cultural and linguistic elements can immensely affect the way the TL community views reality, and can create a type of cultural dependency. This is so because concepts are usually created and designated according to the needs, methods and views of the SL community. Therefore, concepts usually reflect aspects of the SL culture in one way or another. When a TL community relies on translation, rather than creation, this community would find itself imitating the views, methods and practices of the SL community.

Finally, thanks to the systematic approach adopted and consistent translation equivalents offered this study is expected to benefit both terminological translation and linguistic terminography in Arabic. Its benefit for terminological translation lies in the practicality of its systematic approach and in the suitability of the translation techniques adopted. Its benefit for linguistic terminography in Arabic lies in the provision of terminologically appropriate terms for more than 450 linguistic concepts. Being based on the outcome of the critical discussion of previous linguistic terminographical works in Arabic these terms can be the basis for compiling a comprehensive English-Arabic dictionary of linguistic terminology.

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